

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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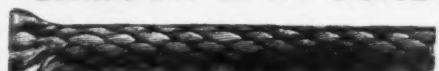
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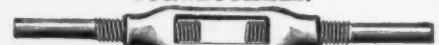
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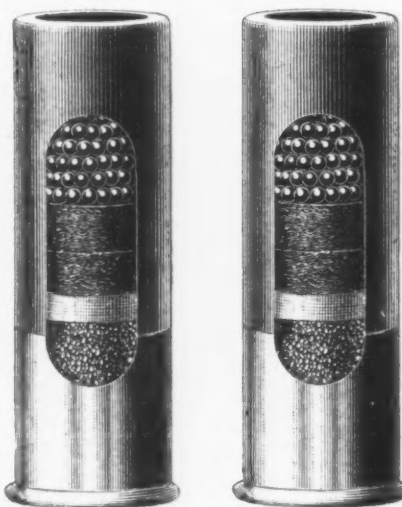
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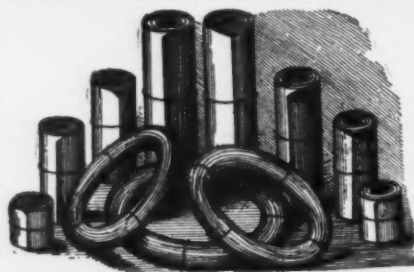
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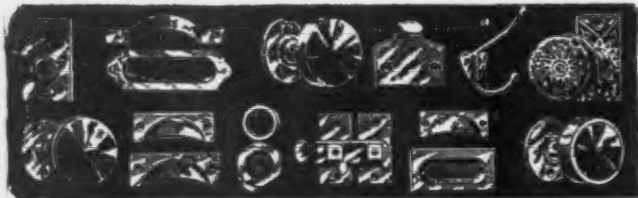
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THE IRON AGE.

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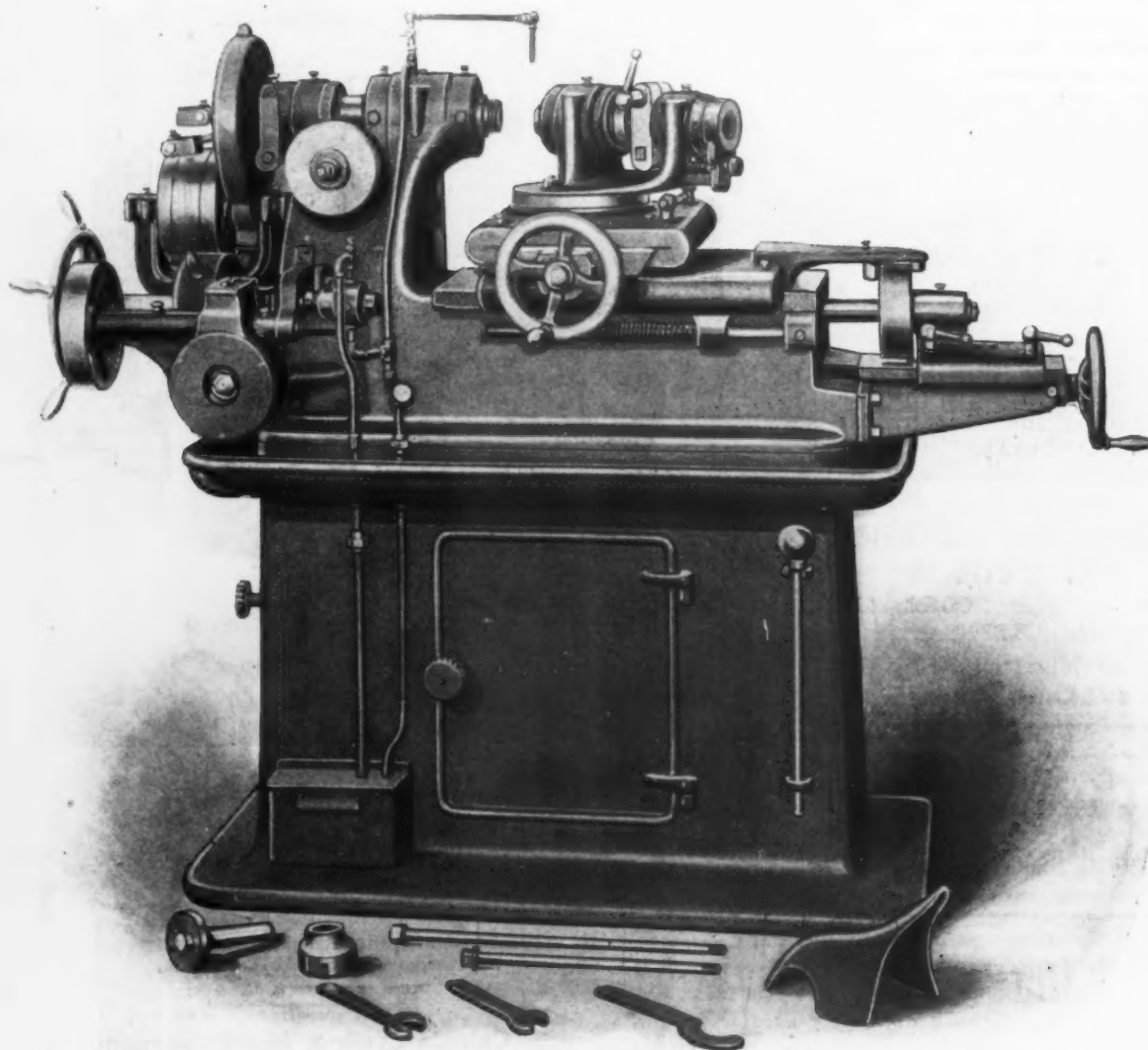
Bevel Gear Cutting at the Pope Mfg. Company.—I.

At the works of the Pope Mfg. Company, Hartford, Conn. are several machines for cutting the bevel gears employed in the Columbia chainless bicycle. These machines differ widely in the principles underlying their design, and each occupies an independent field in work of this character. The Brown & Sharpe machine is based upon the principle that if two pitch surfaces are rolled

act upon the tooth surfaces more and more of the surplus stock is removed until the form is established. The teeth may be shaped in different ways in order to accomplish this result. In the machine the gear blank is secured to a spindle which is set at the proper angle to the generating spindle, and carriages are provided to bring the blank and generator into proper relation.

The Brown & Sharpe Bevel Gear Generating Machine.

The machine built by the Brown & Sharpe Mfg. Company of Providence, in accordance with patents issued to



THE BROWN & SHARPE BEVEL GEAR GENERATING MACHINE.

together without slip a tooth upon one surface will develop or generate a tooth upon the other pitch surface which is conjugate to the generating tooth. It consists of a generator in the form of a gear having the teeth so modified at their working surfaces as to form cutting edges, and which are arranged in varying relation to the plane representing the pitch line, so that they will remove the surplus stock from the surfaces of the blank teeth by merely rolling the pitch surfaces together. As the pitch surfaces roll together each edge or point on the generator removes a portion of the surplus stock on the blank and forms a conjugate line or point on the surface of a tooth of the blank, and as successive edges or points

O. J. Beale, is illustrated in the accompanying engravings. The principle will be understood from the illustration, Fig. 3, in which B is the gear blank and A and C the generators. The generators may have teeth varying in height with the corners left sharp, Fig. 4, or the cutting teeth may be file shaped, as shown in Fig. 5. By these means a series of edges or points is formed, which are so arranged that the surfaces of the tooth become in effect abrading surfaces. In such a case a tooth upon the generator will generate a conjugate tooth upon the blank, the edges or points upon a single tooth acting successively upon the surfaces of a tooth upon the blank as the pitch surfaces roll together and thereby cutting away the sur-

plus stock. It is evident that the design may be used in the manufacture of any form of gearing, although it is especially useful in cutting bevel gears in which the curvature of the two surfaces changes from one end of the tooth to the other, and which cannot, therefore, be accurately cut in the usual way. By this method the diameter measurements of the generator should always equal twice the distance from the apex of the pitch cone to the outer end of the teeth at their pitch line, as, if this rule were not adhered to, the generator, which represents a circular rack, would not possess teeth of a proper taper lengthwise.

In the drawing A represents a portion of a generator in the form of a spur gear, and having a series of edges arranged in varying relation to the pitch surface of the

the edges upon each tooth act successively upon the surface of a blank tooth, the surfaces of which are reduced to the correct shape conjugate to the surfaces of the teeth of the generator.

The machine for carrying the blank and generator is shown in Figs. 1 and 2. The spindle carrying the generator is forced forward by means of a cam roller, so as to bring the gear and generator into contact. The generator and blank are operated through open and crossed belts. A reversing mechanism is provided to reverse the motion of both gear and generator as the two are crowded into mesh until the pitch surfaces have been brought into contact by the complete turn of the cam at the end of the generator spindle, when the cutting has been finished. As illustrated in Fig. 2, the arbor carrying the blank is

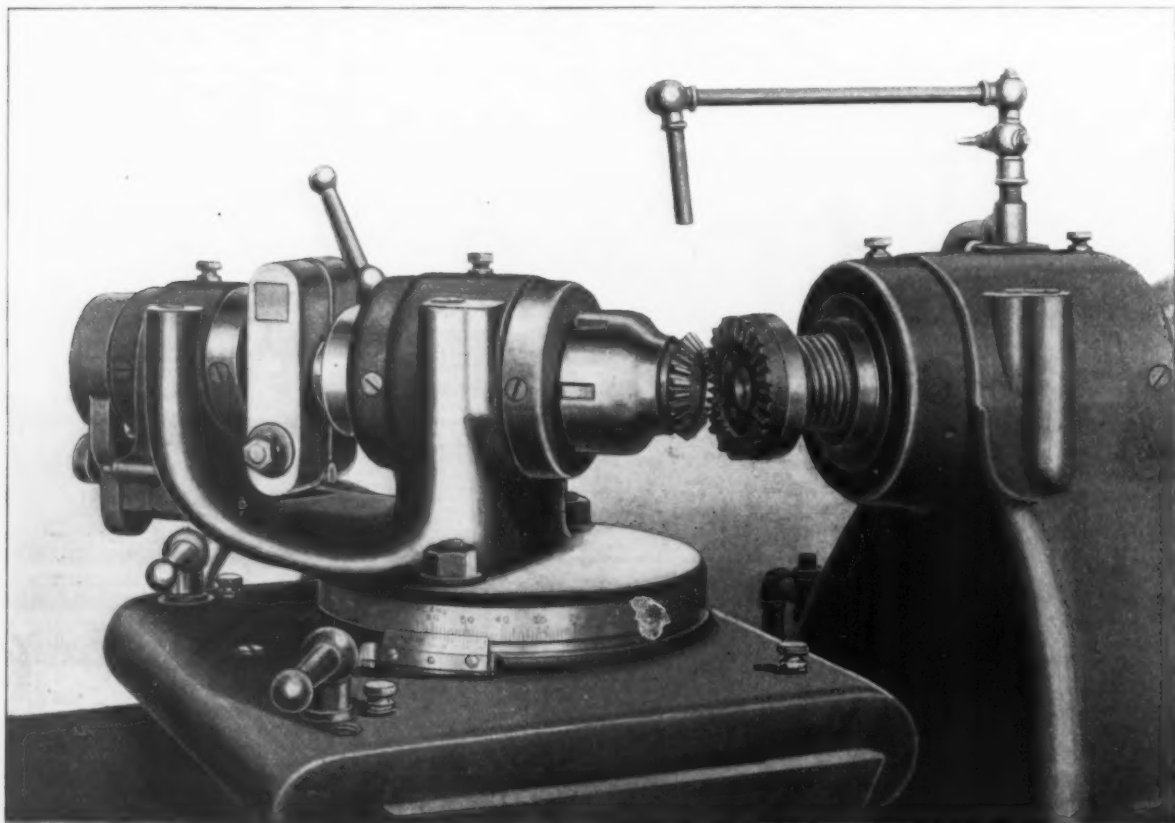


Fig. 2.—Enlarged View of Blank and Generator.

THE BROWN & SHARPE BEVEL GEAR GENERATING MACHINE.

generator. These surfaces become in fact filing surfaces, which remove the stock. In the blank B the teeth have been roughed out to approximately the correct form. As the pitch surfaces of the blank and generator roll together the cutting edges remove the surplus stock and reduce the teeth to the correct form. In the same drawing C shows a similar generator in the form of a rack.

The generator shown in Fig. 4 and also in the perspective view, Fig. 2, is in the form of a crown gear, which is the dividing line between an external bevel gear and an internal bevel gear, and corresponds to the rack in spur gearing. That is to say, its pitch surface is a plane surface. The teeth of the generator are truncated wedges in cross section and their surfaces plane surfaces, as this form of tooth may be conveniently and accurately cut. The edges are so arranged as to convert the surfaces of the teeth into substantially file surfaces, which act to abrade or cut away the surplus stock of the blank by an action similar to the action of a file. These are produced by removing portions of the surfaces of the tooth and the operation of these edges in relation to the pitch surfaces varies upon different teeth. When the pitch surfaces of this generator roll upon the pitch surface of the blank, the teeth of which have been roughed,

mounted upon a graduated carriage, which provides for the accurate adjustment of the angle.

Canada Cycle & Motor Company.

The new bicycle amalgamation has now a name. It is the Canada Cycle & Motor Company. Another manufacturing concern, the Gendron Company, have been bought out. The forecast of the directorate is as follows: W. E. H. Massey, Senator Cox, L. M. Jones, E. Thomas, W. Y. Soper and E. L. Goold, Mr. Massey to be president and Senator Cox vice-president. Not all the existing works of the various companies incorporated will be kept running. The Massey-Harris Company's bicycle machinery will be removed from the Toronto factory and installed in the Cleveland Company's Toronto Junction factory, which has lately been increased by an addition equal to its original great size, and which may now be further increased. The Massey-Harris Company require for implement manufacturing purposes all the space heretofore taken up by their bicycle works. The Gendron Company will cease manufacturing wheels and their bicycles will now be turned out in the Toronto Junction works. That company, however, will continue in independent business in Toronto, manufacturing children's carriages, &c. The Welland Vale Bicycle Works of St. Catharines, it is said, will be closed down. But in Brantford the Goold Bicycle Com-

pany's works will be kept going by the amalgamation. Thus in place of the five factories of the several companies amalgamated or bought out only two will continue making bicycles, and these two will add to their output automobiles, the manufacture of which may be limited to the Toronto Junction works. The Brantford works will be extended, and it may be found necessary also to enlarge still further those at Toronto Junction.

Basic Open Hearth Process in Westphalia.

The Journal of the Iron and Steel Institute prints the following abstract of a paper by K. Johansson in the *Jernkontorcts Annaler*:

He observes that German furnaces can obtain large quantities of scrap, so much indeed that the acid furnaces work with 90 per cent. of it and the basic furnaces with 85. The arrangements of the furnaces are generally well adapted for large out turns. They are usually similar in form, and it is only at the Phoenix Works that two new 20-ton furnaces of the Riley form with round producers are met with. The dimensions of the furnaces vary with the size of the charge to be dealt with. These vary between 5 and 25 tons, the most suitable being considered to be from 15 to 18 tons. Various furnace dimensions are given and the mode of construction described. The producers are fed either with bituminous coal or with brown coal, the latter also yielding a satisfactory gas. Körting injectors are used to force air into the producers below the fire bars, and fans are also made use of. In Hörde at the steel foundry three producers are always at work, and one in reserve, the open hearth plant there

strewn over the ladle before the metal is charged into it. Much secrecy is shown in connection with this, but it is certain that the charcoal or coke powder must be perfectly dry before it is used.

The method of working the open hearth furnace is described. Very large percentages of scrap are used, as has been previously stated. After charging, as much gas as possible is passed in to make the melting down as rapid as possible, this being about the most important point in the whole process. For the basic hearth, too, this is a most important matter. If the gas is able to play upon a portion of the uncovered hearth, it softens it considerably, and during the boil such a spot is then always greatly attacked, a hole being produced. If no limestone was added with the charge after it has run down, about 2 per cent. is added, and more is subsequently added if necessary. Very little ore is usually required, so much scrap being used. Spanish hematite is

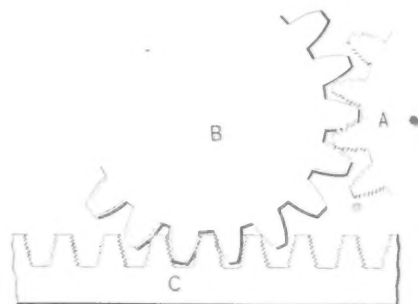


Fig. 3. Sketch Illustrating Principle.



Fig. 4.—Mutilated Gear Generator.



Fig. 5.—File Tool Generator.

THE BROWN & SHARPE BEVEL GEAR GENERATING MACHINE.

possessing 16 producers, placed in four rows of four producers each, but only 12 of these are used daily. The three 20-ton furnaces at Hösch have six step grate producers, 13 feet in height and 5 feet in diameter. Four of these supply the gas for these three large furnaces. Water gas does not appear to be used anywhere in Westphalia, although at Hörde it was much praised, apart from its very explosive character.

The acid bottoms are always sintered together, Rhine sand being used with some basic material, the mixture being so arranged that it shall sinter well together, but not actually melt even at the highest temperature in the furnace. The method of procedure in connection with the stamping in of basic hearths is described, powdered chrome iron ore being used as a parting between the acid and basic materials. The method employed in getting the furnace into actual work is also dealt with in detail.

Dealing next with the furnace charges the author points out that the boil is a very short one, owing to the large quantities of scrap used. He gives the constituents of a series of charges. In all furnaces the carbon is eliminated as far as possible, the desired degree of hardness being subsequently given to the metal by the addition of spiegeleisen, ferromanganese and ferro-silicon. The author only saw the recarburization effected by powdered coke in the case of basic open hearth steel at Hösch and at the Phoenix Works. At basic Bessemer works, however, where rail steel is being made, powdered coke is universally employed for this purpose to save the more expensive spiegeleisen. At each open hearth works the addition is made to the ladle when tapping, the charcoal powder or coke powder being charged in small packages, each containing about 2 or 3 pounds. At the Phoenix Works a couple of pounds of the loose powder are also

the ore generally used. The various recarburizing and deoxidizing additions are always strongly preheated, either at the working doors or in special furnaces. In the first case a thin layer of lime is first put on the dolomite to prevent adhesion, on this the spiegeleisen is placed, on top of this the ferro-silicon and on top of all the ferromanganese. This preheating is continued until the ferromanganese and ferro-silicon begin to melt. They are then all pushed rapidly into the bath and stirred for about a minute.

The cleaning and repairing of the furnaces is considered in some detail, and the ladles, molds, &c., in use are also considered. The testing methods in use are also mentioned, those at the Phoenix Works being stated in detail. In connection with this the following table is given:

Carbon. Per cent.	Tensile strength. Tons per square inch.	Elongation. Per cent.	Degree of hardness.
0.06 to 0.10	21.6 to 24.1	25 to 30	000
0.10 to 0.15	24.1 to 26.7	22 to 25	00
0.15 to 0.22	26.7 to 29.8	20 to 24	0
0.22 to 0.28	29.8 to 32.4	20 to 22	1
0.28 to 0.33	32.4 to 35.5	18 to 20	2
0.33 to 0.38	35.5 to 38.7	16 to 20	3
0.38 to 0.45	38.7 to 43.2	15 to 18	4
0.45 to 0.50	43.2 to 47.0	14 to 16	5
0.50 to 0.55	47.0 to 50.8	12 to 15	6
0.55 to 0.60	50.8 to 54.6	10 to 12	7
0.60 to 0.68	54.6 to 57.1	8 to 10	8
0.68 to 0.75	57.1 to 63.5	5 to 10	9

The loss of metal is largely dependent on the percentage of scrap that is used in the charge. If this is large and free from rust then the loss is usually not more than 4 or 5 per cent. Otherwise it may reach 8 or 9 per cent. Excellent results are also obtained in regard to the fuel consumption. At Hörde, for instance, this amounts

to from 30 to 35 per cent. of the weight of metal produced, and at the Gutehoffnung Works to only 25 or 30 per cent. At this last works hot scrap is added, the furnace making six charges a day. It is stated that at the works of the Bochum Company the consumption of fuel has been brought down to about 25 per cent. These results, the author observes, are due to rapid working, with a resulting high out turn.

The Paris Exposition Medal.

The following description of the medal which the French authorities will bestow upon deserving exhibitors at the Paris Exposition of 1900 is given by Capt. A. H. Mattox of the Bureau of Publicity of the United States Commission: The medal is of bronze, 2 1/16 inches in diameter, and is the work of the French sculptor, M. Georges Lemaire. It consists of a female figure, modeled in considerable relief, holding in her right hand a branch, while with her left hand she sustains an airy bit of drapery. The wording is simply "l'Exposition de Paris," and the sun, with conventionalized rays at her left, has the figures 1900 imprinted across it. The figure is seated on the capital of a column, which is almost hidden by the ample folds of the drapery, which are excellently handled. At her feet is a scroll, a palette and a lyre, typifying the fine arts. The reverse of the medal is made up of a cartouche, which is to receive the name of the recipient. At one side and secured by a banderole is a sheaf, presumably of corn, typifying agriculture. Below, at the center, is an air ship, at its right is a telegraph pole and at the left a battle ship bristling with fighting tops, conning towers and turrets. The lower part of the composition is made up by the usual cog-wheels, anvil, governor, &c. There is also a camera, telephone, a globe, books and an alembic.

More Wireless Telegraphy Tests.

Some interesting results were obtained with wireless telegraphy the other day at Dover, England. One of Signor Marconi's installations, says the *London Times*, was set up for experimental purposes between Dover and the South Foreland Lighthouse, and the East Goodwin Lightship. The apparatus was set up at the Town Hall buildings in Dover and the ordinary flag staff of the building was utilized. The Town Hall which is surrounded by buildings, is in the center of the town. Intervening between the place where the instrument was fixed and the South Foreland are the high cliffs upon which stands Dover Castle. Messages had, therefore, to pass through or over cliffs from 300 to 410 feet above sea level for about 4 miles. The same conditions applied to the East Goodwin Lightship, except that in this case the message had to travel 12 miles across the sea. It was in order to make these tests that the experiments took place. The results were completely successful. Messages were transmitted and received with the greatest ease and without a hitch. Four lightship men, who have qualified as first class operators, assisted in the experiments.

Comptroller of the Currency Charles G. Dawes, in an interview given last week in Chicago, said that the condition of the national banks throughout the country is more prosperous than ever before. The favorable condition of the banks is mainly due, the Comptroller says, to good crops, which have resulted in the liquidation of many farm debts. The Comptroller's monthly statement regarding the circulation of the national banks shows that the total outstanding on August 31 amounted to \$242,071,792, an increase of \$14,893,177 for the 12 months ending with August, a marked contrast with a year ago, when a decrease instead of an increase for the preceding 12 months was recorded.

A convention, establishing a parcels post system between Germany and the United States, was signed last week, to go into effect on October 1. This is the first agreement of the kind arranged with any European Government. The agreement fixes the postage rate on parcels going from the United States to Germany at 12 cents for every pound or fraction of a pound. The weight of the parcels is limited to 11 pounds.

A lock out of employees in the building trades, which had been in force in Denmark for several months, was ended on Monday, a satisfactory agreement having been reached. Thirty-five thousand persons were involved in the trouble.

We are informed by J. G. Wright, New York agent for the New Philadelphia Iron & Steel Company, New Philadelphia, Ohio, that he is officially advised by the mill that no option has been given on their plant to the Union Steel & Chain Company.

The Atbara Bridge.

Engineering summarizes editorially the main facts of the famous Atbara Bridge contract, based on a Government paper which has just appeared: The control of the Atbara bridge work was in the hands of Lieutenant-Colonel Gordon at Cairo, his agent in England being Colonel Western. As every one knows, the Sirdar had, with characteristic energy, pushed forward a railway into the desert on the bank of the Nile, its immediate purpose being to aid in the great campaign, and its ultimate object a terminus at Khartoum. The Atbara River interposed a serious obstacle, and the line could not be completed without a bridge, the erection of which was of extreme urgency. So urgent indeed was Lord Kitchener's requirement that he requisitioned for stock material that would serve the purpose forthwith. Of course this was not forthcoming, and plans and specifications were immediately prepared. This was in October of last year, and on December 29 following tenders for the work were received in Cairo. Seven offers were sent in, five from English and two from American firms; the prices per ton of the latter were £11 17s. 6d. per ton and £13 11s. 6d. per ton; the English offers ranged from £16 12s. to £13 10s. per ton, in all cases, both English and American, with delivery at Liverpool. The time required varied from 14 weeks to 9 months. A mistake, however, had been made in the design of the bridge, which involved the necessity of heavy false works in the bed of the river—a condition which could not be accepted. Fresh tenders were, therefore, asked for from the same firms, who were furnished with a very rough specification, the two necessary conditions being quickness of delivery and erection by launching without any false works; price was altogether a secondary consideration. The specification was as follows:

"Provide for a train of two engines followed by a train of 1 ton per foot run.

"Wind 30 pounds on a train 11 feet high above the rails, plus the girder surface.

"Limiting stresses, 9 tons per square inch on net sections, calculating the working load as follows:

"Dead load plus live load by 1.5.

"Provided that the dead load assumed shall never be less than half the live load.

"The bridge is to be a through bridge, 14 feet clear width and 15 feet 6 inches headway, of seven spans of 150 feet clear, carried on cylinders 10 feet in diameter, the girders to be launched, but the continuity is not to be permanent. Launching strains not to exceed 9 tons."

From the foregoing it is evident that manufacturers were left an entirely free hand as to design, subject, of course, to the approval by Colonel Gordon or his colleague, Colonel Western. From the commencement of the negotiations it appeared quite hopeless to expect anything like an early delivery from the English manufacturers, a delay of, at first, one year before completion in England, and afterward of two years, being the conclusion unavoidably forced on the authorities. Nor were the two offers coming from America satisfactory as to early delivery. Colonel Gordon accordingly caused further inquiries to be made in America, and in consequence obtained an offer from Pencoyd (the first appearance of that company in the matter), guaranteeing delivery of a standard type bridge in six weeks. This offer was shortly after modified in accordance with the specification quoted above, and on January 25 last the revised results were in the hands of Colonel Western; they were as follows:

Phoenix Company, declined for early delivery.

Horseley, declined for early delivery.

Handyside, declined for early delivery.

Patent Shaft & Axle Company, £15 15s. per ton in English port, first span in two months; the others, one every three weeks.

Sanders, Pennsylvania, £10 15s. per ton, United States port; time, 3 1/2 months.

Union Bridge Company, £13 per ton, United States port; time, 65 days.

Roberts, Pencoyd, \$31,000, United States port; time, 42 days.

Certainly Colonel Gordon spared no pains in giving every facility to English manufacturers, but competition was entirely out of the question. Colonel Gordon states in his report that one of the directors of the Patent Shaft & Axle Company, who had done all that was possible to secure the contract, called on him in Cairo and asked what the result had been. "When I told him that we had placed the order with Pencoyd for complete delivery in six weeks, he told me that they could not possibly compete against such quick delivery, and that he doubted whether any firm in the United Kingdom could make as good an offer as they made (the Patent Shaft & Axle Company), as they were, he believed, the only firm in the United Kingdom that rolled their own material, all the bridge makers having to depend for their rolling

on outside firms, who might or might not be able to give preference to this work."

The statements of Colonel Gordon effectually dispose of the absurd stories of favoritism to American makers, which have been circulated to excuse the deficiencies of our own manufacturers, while the equally absurd statement that while English makers were bound down to follow a prescribed design, Pencoyd was given a free hand, is also effectually contradicted. On the other hand, the opinion expressed by the director of the Shaft & Axle Company, quoted above, must, we suppose, be accepted as correct.

We have seen that the question of the price paid for the Atbara Bridge was of very small importance, but it is of interest to compare the offers made by the Patent Shaft Company and Pencoyd. The price of the former was £15 15s per ton, delivered in an English port; the latter was a lump sum of \$31,000, or, say, £6400, delivered at New York. The weight of the Pencoyd bridge, including erection plant, was 1,507,000 pounds, or, say, 670 tons, making the price per ton £9 11s. To this has to be added freight to Liverpool, £1 2s. 6d., bringing the cost per ton to £10 13s. 6d. On this point Colonel Gordon says: "The price quoted by the nearest English firm was £10,400. I may mention that this was calculated on the weight of the English bridge being the same as the American, but I now gather that it would have been about 200 tons more, and at £15 15s. per ton would mean an increase of £3150." It has been urged that the Pencoyd Company took the contract at a loss, but this is not so, and we notice that, even with the present great inflation of prices, they have secured a 10,000-ton contract for Japan at £15 per ton.

Memorandum on the Superstructure of the Atbara Bridge.

The original demand for this bridge was made by me in a letter to Colonel Western (War Department representative in London) on October 16, 1898, and he was requested to consult with Mr. Robertson as to the design, &c. In the meantime the Sirdar saw Mr. Robertson and fully explained to him the importance of quick delivery; in fact, to look about and see if any stock material could not be used in its construction. Apparently Mr. Robertson did not find anything suitable and drew out designs for a bridge with full specifications. On arrival of the plans and tenders in Cairo on December 29, 1898, I at once saw that the bridge would have to be built up from the bed of the river, and that if the substructure was not finished at least some weeks before the flood came down that there would be no possibility of getting the bridge finished this year, and so for at least four to six months the Khartoum line would be cut off at the Atbara. I therefore telegraphed to Colonel Western on January 6 last to say that we must have a bridge that was capable of being launched or built up without false work in the river.

Colonel Western called for tenders to the rough specification attached from the four English firms who had quoted for earliest delivery and from two American. The whole question was one of quick delivery; price was practically not considered.

Estimate of Time.—On October 29, 1898, Colonel Western wrote and said that the bridge could not be completed under a year in the following words: "... There is at present, I am informed, small chance of the superstructure of this bridge being completed in England under 12 months—all shops being full of work."

On December 1, 1898, Mr. Robertson expressed his opinion thus: "... But this bridge will, in our opinion, take at least two years to build, and if, as we understand, a bridge is wanted before next floods the following courses are open in mitigation of break. ..." (Mr. Robertson suggested a temporary bridge or ferry.)

In face of all this I feared there was little chance that the bridge could be finished before the flood and therefore used every effort to get quick quotations elsewhere, and privately referred to America (the English reports being so hopeless), and then got a telegram from America (Pencoyd) offering a suitable standard bridge for delivery in six weeks. On this I telegraphed Colonel Western:

"Pencoyd Company, Philadelphia, offer eight 150-foot through spans, \$28,000, delivery six weeks; load two consolidations, 90 tons each train load, 26 hundredweight per linear foot. Unless you can do better you may accept seven spans only. Please arrange for inspection. Design is considered satisfactory as firm work to good standards. Inform them that each of our piers will be two 10-foot cylinders, 150 feet center to center. Bridge company must fix distance apart transversely to suit their design and must provide caps for cylinders and all above." (January 11, 1899.)

Colonel Western replied that this bridge could not be built without false work, on which I telegraphed: "Why cannot Pencoyd bridge be launched? Will you demand quotation for bridge possible for launching from them and other firms?" (January 11, 1899.)

And again on January 20 last: "... *Re Atbara Bridge superstructure*, have you any reply from Pencoyd? Do not wait designs. The earliest date that can be given required immediately, also distance transversely between cylinders. Do you understand spans 150 feet between centers of piers?"

Receiving a satisfactory reply I telegraphed on January 23 last as follows: "... Accept unless you can do better," &c. And finally received reply that Colonel Western had closed with Pencoyd and to final rough specification, Colonel Western not having received any better offer from England to the rough specification referred to above.

In the meantime one of the directors of the Patent Shaft & Axle Company called on me at the Citadel and asked what the result of the offers for the bridge to specification had been. When I told him that we had placed the order with Pencoyd for complete delivery in six weeks, he told me that they could not possibly compete against such quick delivery.

The whole of the material for the bridge has been inspected by a representative sent from England by Colonel Western.

I have not referred to price, since that point was not considered by us of such importance as the time of delivery, but having in my former memorandum stated that the price quoted by the nearest English firm was £10,400, I may mention that this was calculated on the weight of the English bridge being the same as the American, but now gather that it would have been about 200 tons more, and at £15 15s. per ton would mean an increase of £3150.

Finally, I wonder that comment has not been made on the fact that the more expensive portion of the bridge piers. Eye bars are solid forgings, accurately bored to be contracted for by an Italian firm, the answer to this being that there is only this single firm in Egypt possessing the required plant for sinking cylinders, &c., and until a British firm set up a plant in this country I conclude that all bridges whose substructures are built as those of the Atbara and others will continue to be contracted for by this Italian firm.

(Signed),

W. S. GORDON, Lieutenant-Colonel.

CAIRO, May 14, 1899.

Atbara Bridge: A. and P. Roberts.

A bridge of the "through" type (pin connections), 14 x 15 feet 6 inches clear inside, capable of being erected on land and launched into position, or of being built out from the piers without any false work or other support.

Seven spans of 150 feet from center to center of piers. Pier head being 2500 m., or 8 feet 2.246 inches inside and 8 feet 3.246 inches outside.

Designed to sound data and with ample coefficients for a rolling load of two locomotives and tenders, each of 81 tons on a buffer length of 55 feet and a wheel base of 46 feet 2 inches, followed by a train of 1 ton per lineal foot.

Width of gauge 3 feet 6 inches.

W. S. G.

Final Report of Inspection and Tests.

The contract for this bridge was awarded to the Pencoyd Bridge Company (A. & P. Roberts Company), Pencoyd, Pa., U. S. A., at a lump sum price by Lieutenant-Colonel J. H. Western, for the Egyptian War Department. The work includes erection material and cast iron cap plates for the piers.

Orders for the material for this structure were placed with the mills immediately after receipt of the contract, which was early in February. They were distributed as follows:

For plates, at Central Iron & Steel Company, Harrisburg, Pa.

For shapes, at Pencoyd Iron Works, Pencoyd, Pa.

Iron squares, Columbia Iron Works, Columbia, Pa.

Basic open hearth steel was used by Pencoyd in filling the orders for shapes and flats; basic and acid open hearth steel was used by Central in filling the orders for plates.

Work in the shop actually commenced on February 8, but little progress could be made on account of difficulty in procuring material, especially the plates, in sufficient quantity to allow the shop to make a fair start on the work. It was further delayed by the great snowstorm on February 13 until the 19th, when the work fairly commenced. The first shipment was made February 25, 1899. The second shipment was made March 15, 1899.

The character of the workmanship was very good and was in accordance with American practice. All chord sections top and bottom were milled accurately to lengths called for within 1-50 inch allowed variation. All pin distances were bored also accurately to lengths called for, center to center, within 1-50 inch; pins were turned exactly to diameter called for and pin holes to pin diameters plus 1-50 inch. Shoe plates were planed for bearing on bed plates and planed also for clearance

at the miter joints with end posts. All bottom chord splice plates were milled. All floor beam and stringer webs were milled to remove sheared edges, and flange angles of floor beams and stringers were milled to lengths called for. All rivet holes for top and bottom chord splices were reamed to cast iron templates, and chords bearing the same mark are interchangeable, so that it is not important that any particular piece should go in any particular span. All holes for rivets carrying floor beams and stringers are reamed to cast iron template length within 1-50 inch. At other points where finish was not required the material was sheared to clean edges or chipped to a smooth surface with pneumatic chipping tools. Where finish is required for the transmission of stress or for the strength of the piece it was done; where it would serve no good purpose it was not done, which is in accordance with American practice in all classes of structural and constructional work. The character of the work was very satisfactory.

Description.

Seven span, single track, through bridge, 147 feet c. to c. of pins in end posts. Piers square throughout length of bridge.	
Length (of each span), 21 panels of 21 feet.....	147 0
Width, c. to c. of trusses.....	16 2
Height, c. to c. top and bottom chords.....	21 6
Height, clear of portals.....	16 0
Width, clear of knee braces.....	14 0
Top and bottom chords, built up members.	
Height of floor beams (b. to b. of angles).....	3 7/8
Height of stringers (b. to b. of angles).....	2 9/16
Width, c. to c. of stringers.....	5 6
Pounds.	
Weight of seven spans, minus cap plates.....	1,258,909
Weight of seven spans, minus cap plates, per linear foot.....	1,199
Weight of seven spans, minus cap plates, per square foot.....	74
Weight of floor system only.....	359,620
Weight of floor system only, per linear foot.....	342
Weight of floor system only, per square foot.....	21
Weight of cast iron cap plates, with screws.....	132,990
Pounds.	
Weight of seven spans, including cast iron cap plates.....	1,391,899
Weight of material.....	115,945
Total weight of contract.....	1,507,844

Final Report of Tests of Material.

FROM CENTRAL MILL.

Melt. No.	Cut from—	Elastic limit.	Ultimate strength.	Elongation.	Reduction of area.	Fracture.	Chemical analysis.			
		Tons of 2,240 pounds.	Tons of 2,240 pounds.				Carbon.	Phosphor.	Mangan.	Sulph.
11,251	43% x 3/4 inch plate.....	20.95	28.07	26.00	42.7	S ang.	0.16	0.050	0.44	0.035
2,358	43% x 3/4 inch plate.....	19.33	27.30	25.00	59.4	S ang.	0.13	0.076	0.43	0.060
11,245	33% x 7-16 inch plate.....	21.01	26.90	26.00	57.3	S ang.	0.13	0.072	0.31	0.041
9,161	33% x 7-16 inch plate.....	18.55	30.13	25.00	47.6	S ang.	0.24	0.015	0.53	0.035
12,316	33% x 7-16 inch plate.....	17.09	27.32	28.00	59.2	S ang.	0.24	0.011	0.46	0.043
13,036	25 x 1/2 inch plate.....	16.25	28.94	30.25	58.6	S ang.	0.17	0.010	0.33	0.030
9,018	23% x 3/4 inch plate.....	17.22	27.52	27.50	61.9	S ang.	0.23	0.009	0.37	0.026
13,019	22 x 1/2 inch plate.....	16.00	27.74	28.00	57.7	S cup.	0.22	0.011	0.42	0.033
8,013	20% x 3/4 inch plate.....	18.21	28.45	25.50	51.3	S ang.	0.23	0.013	0.44	0.037
9,052	20 x 3/4 inch plate.....	18.46	27.73	27.50	58.5	S ang.	0.23	0.011	0.45	0.040
13,024	19 x 3/4 inch plate.....	16.88	27.69	28.75	61.0	S ang.	0.17	0.007	0.41	0.032
13,058	14 1/2 x 7-16 inch plate.....	16.64	27.24	29.00	55.8	S ang.	0.18	0.011	0.44	0.027
12,327	14 1/2 x 7-16 inch plate.....	16.40	30.39	22.50	51.5	S ang.	0.26	0.015	0.56	0.031

FROM PENCYD MILL.

2-2031	15-inch channels.....	15.90	28.60	31.00	51.7	S ang.	0.15	0.020	0.45	0.040
2-2034	15-inch channels.....	18.56	29.00	25.00	52.1	S ang.	0.15	0.040	0.51	0.040
9-2740	12-inch channels.....	16.60	27.65	31.25	56.7	S cup.	0.13	0.040	0.44	0.040
10-3413	12-inch channels.....	17.62	28.79	28.75	59.2	S ang.	0.16	0.040	0.43	0.030
5-2383	10-inch channels.....	16.12	26.50	28.75	60.0	S ang.	0.15	0.040	0.44	0.040
4-2385	10-inch channels.....	16.10	27.86	28.75	60.0	S cup.	0.15	0.040	0.44	0.040
6-365	8-inch channels.....	15.66	27.82	30.50	51.5	S cup.	0.17	0.040	0.50	0.040
9-2719	6-inch channels.....	19.85	29.76	28.75	52.5	S ang.	0.15	0.030	0.50	0.030
9-2890	6-inch eye bars.....	15.40	29.39	28.75	51.8	S cup.	0.20	0.040	0.53	0.040
9-2888	4-inch eye bars.....	17.86	29.26	30.00	50.7	S cup.	0.18	0.030	0.41	0.040
6-574	6 x 6 inch angles.....	17.20	27.41	32.25	58.7	S cup.	0.14	0.040	0.44	0.040
9-2888	6 x 4 inch angles.....	17.80	28.58	30.00	49.2	S ang.	0.18	0.030	0.41	0.040
7-974	5 x 4 inch angles.....	16.01	27.90	29.25	58.2	S ang.	0.17	0.030	0.44	0.040
10-3398	5 x 3 1/2 inch angles.....	18.41	27.95	30.00	65.4	S ang.	0.18	0.020	0.53	0.030
6-414	5 x 3 inch angles.....	15.55	27.74	31.50	64.8	S ang.	0.14	0.020	0.42	0.040
7-994	4 x 3 1/2 inch angles.....	16.86	26.77	31.25	56.3	S ang.	0.14	0.040	0.45	0.040
9-2823	4 x 3 1/2 inch angles.....	15.39	27.20	31.75	66.8	S 1/2 cup.	0.19	0.030	0.70	0.040
9-2878	3 1/2 x 3 1/2 inch angles.....	17.60	28.15	31.25	57.1	S ang.	0.15	0.030	0.53	0.040
3-2096	3 1/2 x 3 inch angles.....	17.30	27.32	30.50	57.8	S ang.	0.15	0.020	0.46	0.030
6-386	3 1/2 x 3 inch angles.....	16.94	27.95	27.50	61.0	S ang.	0.16	0.020	0.47	0.040
4-2290	3 x 2 1/2 inch angles.....	20.58	29.73	28.50	51.6	S ang.	0.16	0.030	0.40	0.030
5-2213	12 x 5/8 inch flat.....	16.30	27.00	31.50	48.7	S ang.	0.16	0.020	0.35	0.040
9-2726	12 x 5/8 inch flat.....	17.51	27.47	28.50	51.0	S ang.	0.14	0.040	0.48	0.030
6-404	10 x 5/8 inch flat.....	17.69	27.81	29.00	54.2	S ang.	0.15	0.020	0.38	0.040
2-1872	7 x 5/8 inch flat.....	18.41	29.30	32.00	57.8	S ang.	0.16	0.040	0.43	0.040
9-2700	6 x 5/8 inch flat.....	16.70	28.23	30.50	44.4	S ang.	0.21	0.040	0.46	0.040
3-1872	5 x 5/8 inch flat.....	20.02	28.57	31.00	54.0	S 1/2 cup.	0.20	0.040	0.50	0.040
10-3478	5/8-inch rounds.....	14.72	26.48	33.75	65.6	S cup.	0.10	0.030	0.49	0.040
8-673	5/8-inch rounds.....	19.20	24.92	35.00	67.7	S cup.	0.12	0.020	0.42	0.040
7-1018	5/8-inch rounds.....	19.30	25.04	35.00	67.5	S cup.	0.12	0.020	0.45	0.040
These last four represent rivet and bolt stock.										
7-941	Analysis of pin material.....						0.21	0.040	0.56	0.040
5301	16 x 5/8 inch plate.....	16.02	26.28	29.50	63.3	S ang.				
8079	87 x 5/8 inch plate.....	18.79	30.03	25.00	51.2					
2424	45 x 5/8 inch plate.....	17.79	29.45	25.00	47.3					
11237	39 1/2 x 8 1/2 inch plate.....	22.57	28.62	28.50	52.6	S 1/2 cup.				
1450	20 x 5/8 inch plate.....	19.41	28.78	26.00	58.7	S cup.				
5301	16 x 5/8 inch plate.....	16.14	27.73	23.75	48.7	S 1/2 cup.	0.20	0.015	0.42	0.044
8079	87 x 5/8 inch plate.....	19.73	30.80	22.50	43.9					
2524	45 x 5/8 inch plate.....	17.94	29.43	28.75	50.7					
11237	39 1/2 x 8 1/2 inch plate.....	21.50	29.09	27.50	47.6	S ang.	0.24	0.014	0.50	0.022
1450	20 x 5/8 inch plate.....	19.57	29.38	24.75	57.5	S irreg.	0.15	0.067	0.45	0.048
9-2891	4 x 3/4 flats.....	17.93	29.49	28.50	41.3	S cup.	0.19	0.030	0.46	0.040

Analysis of melts.....	6-584	8-634 and 5-2383
Gave silicon.....	0.014	0.018 0.006

Iron squares from Columbia Iron Company gave results as follows:

Cut from—	Elastic limit, tons per sq. in.	Ultimate strength, tons per sq. in.	Elongation, per cent.	Reduction of area, per cent.
1 1/4-inch.....	13.32	21.97	19.50	30.90

(Signed)

BOOTH, GARRET & BLAIR.

An inventory and appraisal of the value of the estate of the late Wm. R. Howe of Howe, Brown & Co., Limited, steel manufacturers, of Pittsburgh, was filed in that city last week. It shows the estate to be worth a total of \$213,281.78. Of this \$196,377.07 is in stock in the firm, \$29,500 in cash in the hands of the firm, \$9,764.71 cash in banks and the balance in railway stocks.

Arrangements have been made for the erection of a shovel factory at Newcastle, Ind. The details are largely in the hands of John M. Morris and R. M. Watkins of that city. Among those interested are Messrs. Gaar, Miller and Wiggins of Richmond, Ind. Newcastle pays a bonus for the location. The conditions of the contract with the shovel company provide that the plant shall be operated at least eight months in the year, at the rate of 100 dozen shovels per day, for a period of at least seven years.

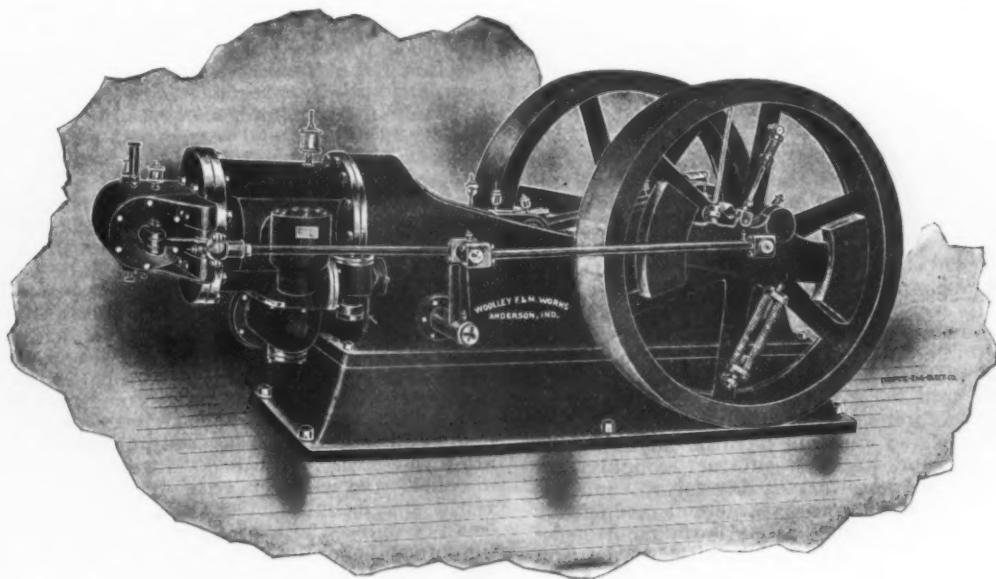
A dispatch from Odessa, Russia, to the London *Standard* says: "Engineers representing a big American syndicate are now at Tashkend, in Syr-Darya, Asiatic Russia, with a project of reclaiming the immense region of Turkestan known as 'Hunger Steppe,' by a system of canals and irrigation works in connection with Syr-Darya. As a guarantee of the enterprise, which is estimated to cost about \$90,000,000, the American concessionaires will receive a long lease of the Steppe."

The Woolley Gas and Gasoline Engine.

The adoption of gas and gasoline engines for isolated electrical plants has created a demand for an engine of large power adapted particularly to this class of work. With this object in view the Woolley Foundry & Machine Works, Anderson, Ind., have brought out the two types of gas engines which are herewith illustrated, one

engine is loaded to its full capacity at one moment and entirely without a load at the next, or under a regular load. The valve is driven by means of a pin on the outside of the wheel, thus doing away with the ordinary eccentric.

The valve is of the cylindrical type, made as light as is consistent with sufficient strength for the work it has to do. The ends are provided with large wearing surfaces and self adjusting packing rings, which maintain an air tight contact with the valve seat. This type insures a

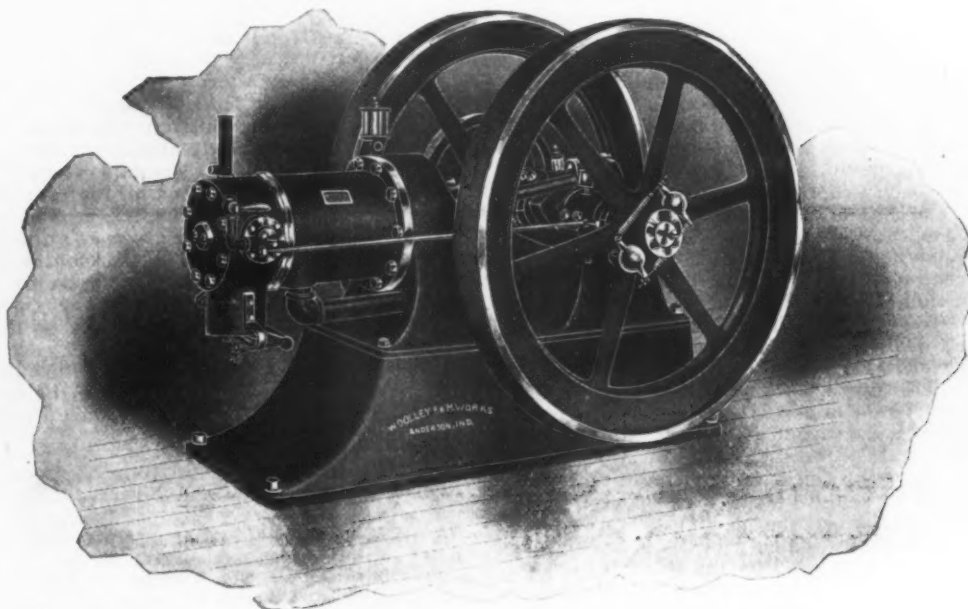


Two-Cycle Gas Engine.

of them being a two-cycle and the other a four-cycle engine.

The two-cycle is a heavy, well-proportioned and self-contained engine. All its reciprocal parts are balanced, and it bears a close resemblance to the highest type of steam engine. This engine is free from complication, and all the moving parts are easily accessible. The crank shafts are forged from a solid billet of steel and slotted.

perfectly balanced valve, and one that will remain tight indefinitely. The rings readily adjust themselves to the varying conditions of contraction and expansion, and therefore will not stick or bind. The ignition is properly controlled by the valve opening the ignition port at the right time to fire the charge. The mixture of air and gas is controlled by a combination stop cock, which is graduated for convenience. The supply of air and gas is



Four-Cycle Gas Engine

THE WOOLLEY GAS AND GASOLINE ENGINE.

After the crank is finished disks are shrunk upon it, made in such proportions as to properly balance the reciprocal parts, thus insuring a smooth running and long lived machine. All its wearing parts are of generous proportions.

The governor is of the single weight or inertia type, and insures close regulation. The principles of inertia and centrifugal force are combined in such proportions that the engine is held to a uniform speed against all disturbing influences caused by sudden changes of the load, and will maintain a regular speed whether the en-

increased or diminished by the opening or closing of a valve to suit the requirements of the engine. The conduit for the gas passes through the air conduit, and is concentric to it. One rubber disk valve opens and closes each of the conduits, equal to the vacuum of the compression chamber. Thus, when the engine is working under a full load it rises higher than it does when the engine is running light, taking in an increase of the supply of the mixture. To make it more clear the valve is raised by a vacuum and without the use of levers or springs.

The company also manufacture a four-cycle engine, which is extremely simple in design. The governor is in the fly wheel, and acts on the air and gas valve, holding it shut when it cuts out. There are no valve boxes outside the cylinder, as the valves work on the inner circle of the cylinder head. Thus the force of the impulse is in a direct line with the piston. By doing away with the valve boxes on the outside there is a saving in fuel, and the cylinder is freed from burnt gases at each revolution.

English Labor and Holidays.

BY WILLARD S. MATTOX.

NEWCASTLE-ON-TYNE, August 22, 1899.—England is the land of strikes and holidays. The latter are fixtures and the former are to be counted on with more or less certainty. Between the two the British manufacturer has a hard time, and he often wonders why England's quondam supremacy is being usurped by Germany, where the laboring man works like a machine, and by America, where machines work like men. In one of his many leisure holiday moments the British manufacturer might do a little profitable work in subtraction, and then draw deductions which aliens here are quicker to note than he.

Let us begin with 365 days in the year. This number is common to the chronology of all civilized nations, so Germany, America and Belgium have no advantage at the start. In England we must subtract, roughly, say 52 Sundays. This is a non-working day for all countries alike, and still leaves the three commercial competitors on an even footing of 313 days. Here is the point of departure, one of them, at least in so far as the comparison includes the United States.

The English manufacturer must allow for about 14 days when his men won't work, at Christmas and New Year. Then he must subtract about 10 days at Easter, when his shops must close down. For all practical purposes, every Saturday in the year may as well be excluded from the working list, because many engineering works and manufacturing plants generally give the men a half day on Saturdays, and the concrete results of the first half day's work cannot be much. But to be absolutely impartial let us deduct only 52 half days, or 26 working days. Then include bank holidays, and in each district a number of local celebrations, which are only locally recognized, and the master can count on about 250 days in the year when he may expect to turn out his products and make money. This problem in subtraction cannot deal with workmen's eccentricities. It goes only so far as the figures allow. But human perversity in the form of workmen's whims will lessen the total by several days more. By way of variety, just because he does not get enough holidays, a strike is thrown in for good measure and the manufacturer's capital is further reduced toward the vanishing point.

I do not mean to be understood as treating this subject with a spirit of jest or levity. It is a serious matter, and to an American observer a criminal abuse of privilege. One instance will serve as a practical illustration. On the second week in August there was a race meeting at Stockton-on-Tees. It is a yearly fixture, I believe, and the races last for three or four days. According to a well defined and time honored custom the shipyards, boiler works, rolling mills, furnaces and manufacturing plants close down for this period to give the men an opportunity, either to go to the races, or to have a holiday. This is a fact vouched for by statements made to the writer while in Stockton a day or two before the races. If it can be imagined that on the day of the Brooklyn Handicap or some other big race near New York all the plants in the neighborhood closed down for one day, the state of affairs which prevails here can be understood. The district affected by the Stockton races is large in area, including Stockton, Thornaby, Middlesboro and other less important towns. The loss to the volume of trade, the loss to the manufacturers, the loss to the men themselves and the many indirect and under surface losses necessary to the act of blowing out fires, banking furnaces, closing plants and then reopening, cannot be translated into terms of dollars and cents.

What would happen if the masters declined to allow these holidays, I don't know. I suppose it would be a strike. All this is digestible food for reflection. And yet the British manufacturer cannot understand entirely why he is being distanced by his American and German rivals. The Atbara Bridge contract went to America. Why? Because it was urgently wanted, and our bridge builders could promise it in a shorter delivery. Here is the time element again. American locomotives have been bought by England herself and her colonies. Why? Time consideration, once more. America could guarantee delivery months ahead of English makers. The same element figures in English methods of work, and can be

traced to the same prodigality of that which is money. American automatic machines and labor saving tools not only do our work better than the old way of finishing by hand, but give America that supremacy which enables her to take foreign contracts from English makers. Such tools either will not or cannot be accepted by British manufacturers. They either prefer to cling to their forefathers' methods or, when willing to change, are forbidden by the workmen. Thus to the diminished number of working days must be added the advantage lost by not employing time saving machines. It is one very good thing to try to cheapen the cost of production, as one way for England to keep her place in the commercial procession, but until time becomes more valuable, and the conservation of it more of a science, and the waste of it more reprehensible, England may expect more Atbara bridges to be made abroad and more American engines to be run on her own railways.

Among other branches of trade which suffer from the holiday mania are the shipbuilders. As everybody knows this is one of the principal industries of the Tyne district. I happen to know of one ship in a local yard which should have been in the water two months ago, and was only launched a few days since. One shipbuilder tells me that if work had progressed without interruption his firm could have added at least 6000 tons to their total output this year. Right here is a monetary loss of considerable proportions, directly traceable to "Too Much Holidays." Such delays may prolong the workman's employment, but he loses in the end. When orders are turned away, "because the works are full for months to come," and contracts go to other countries, that stereotyped statement is no doubt partly true; but if labor could be induced to work up to the limit, with a modification of the holiday luxury, English manufacturers would have more time to work on orders, and could consequently take more contracts per annum. The "holiday" bacillus and the "strike" microbe will have to be treated in quarantine before any other remedy need be thought of.

The holidays are not an unmixed evil, however. Summer resorts, hotels and railways profit by them, and though I have not been furnished with statistics showing the profits of the former, I have seen the figures showing the earnings of the Northeastern Railway, one of the most important lines in Great Britain. The August Bank Holiday week was one of the heaviest for every road in the United Kingdom. In the beginning of the fiscal year the passenger traffic on the Northeastern, for example, gave an average receipt daily of over £5500. In the beginning of August the company's revenues from this source were nearly £10,000 daily. The holiday traffic this year was pretty evenly distributed over two weeks, but an average of the takings for one week in August is given as £12,800 daily from passenger traffic. This, I believe, is the record income from this source.

To offset the increased earnings of the railways, the cost of coal has proved a formidable item. The advance in prices for coal and coke has hit the railroads in one of their most important branches. The statistics for the Great Western Company are given as an instance. This company paid during the last six months, for fuel for their engines, £248,000. This exceeds by £56,000 the amount paid during the same period last year. Even this does not represent the actual difference, as the strike last year made the use of other and dearer coal than Welsh necessary. What the railways fear is that prices for the current half year will be greater than the first half, and the outlook in Newcastle warrants such a presumption.

Lake Iron Ore Matters.

DULUTH, MINN., September 2, 1899.—The leading piece of news in the upper lake country the past week has been the incorporation of the Virginia & Ely Railroad, with various members of the Carnegie interests as incorporators, with a capital of \$1,000,000 and bond limit of \$5,000,000. The incorporators of the company are C. W. Baker of New York, H. W. Oliver, H. M. Curry, Jas. Galley, D. M. Clemson, C. D. Fraser, Geo. T. Oliver of Pittsburgh, and C. A. Congdon of Duluth. These are also the first board of directors. The company expect to build a line of road from points on the Mesaba range at which they have interests to Ely on the Vermillion, where their vast Pioneer and neighboring holdings are located, and thence to some point on Lake Superior not as yet announced, but known to a few, where a harbor will be built. The company next year will be hauling not very much less than 1,000,000 tons from the vicinity of Ely, and on all of this the tariff rate is now \$1 a ton over the Duluth & Iron Range Road, the subsidiary corporation of the Federal Steel Company. The Carnegie Company think that it costs about 40 cents a ton to haul ore from the Vermillion range to the lake and is chary of longer paying the present rate. From the Mesaba range they

think 30 cents a ton an ample figure to cover cost, and the present rate of 80 cents too high. Much of their Mesaba ore is bound to be carried over the Rockefeller road under traffic contracts made when the mines were leased, these contracts covering 400 000 tons annually from Mountain Iron and the same amount from Lone Jack and Oliver combined. Oliver was the company's first investment on the Mesaba and is not turning out as well as the lessee would like, and it is semi-officially stated that the company may perhaps later see fit to abandon their leasehold rights here, though there is a vast quantity of ore in the property.

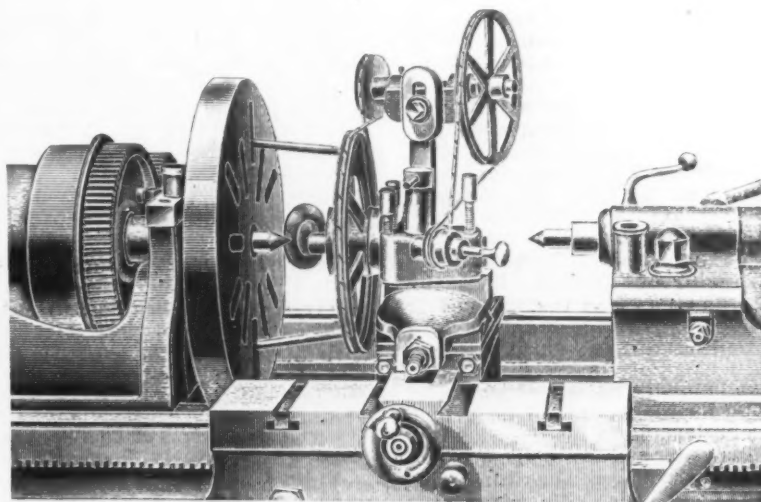
The Carnegie Company have on the Mesaba, in addition to these two mines whose ore must go over the Rockefeller lines, a number of mines and prospects whose ore is tied up by no traffic contract, and which would be carried over their own line. These include the Stevens, an ore body larger than most people imagine; the Shaw, which a few years ago might not have been thought to be worth much, but is now a very much respected deposit; the Sheridan-d'Autremont, a property in 58-20, and a large and well located body of lands belonging to the old Security Company, which are held in fee. That there will be ample business for a fourth ore road there is not the slightest question, and that its completion will have much injurious effect on the present lines is not likely, for they will have all they can well do.

To September 1 the head of the lakes, Minnesota, mines have shipped a total of 4 875,000 gross tons, which is about 850,000 tons more than for the preceding year to

getting to the bottom fast. Penobscot, Mesaba range, which is one of the especially wet mines of the lakes, is arranging to change its pumping system throughout and has had guarantees from engineering firms that they can practically triple the economy of its pumping plant. This plant is not old and contains pumps that were the best of their class six or eight years ago. A 44,000,000 foot pound duty is to be increased to 120,000,000. Penobscot pumps about 4000 gallons a minute. J. M. Thomas, owner of the new Duluth blast furnace, has leased the Williams mine, Eastern Mesaba, for a partial supply of ore for his purpose. He will use as large a proportion of Mesabas as is consistent with safety. A great Gates centrifugal crusher, under installation at Lake Superior Company's hard ore mine, Ishpeming, for some time, is finally in successful operation. Headquarters of six companies of Michigan, all of them connected with the Wright & Davis land and mining interests on the Mesaba, which have been sold to the Great Northern Road, have been moved from Saginaw to Marquette to get them as near the scene of activities as State lines will permit. They are the Lake Superior Company, the New Missabe, and the Wright, Stone, Davis & Wells land companies, with a combined stated capital of \$200,000.

It is stated by an explorer that he has found iron ore to the south of Duluth some 50 miles, in the neighborhood of Moose Lake, and that the ore is apparently of good quality. Nothing is known of it definitely, however.

Four important new explorations are under way on the Vermillion range. G. A. St. Clair, well known at



THE SIMPLEX LATHE CENTER GRINDER.

the corresponding date. In August nearly 650,000 tons were taken from their docks by each the D. M. & N. and the D. & I. R. roads. The rates for ships are still very strong and are steadily climbing, but no quotable changes have occurred in the past few days. It is figured by shippers that to the beginning of September nearly 10,500,000 tons of ore had been moved from all lake ports, there remaining to be moved some 5,500,000 tons, which could be carried in two months or less at the present rate of movement. It is estimated that there are some 1 400,000 tons of grain to be moved from Lake Superior before the close of navigation and that the movement from Chicago east will be largely by rail if the rates stay as at present. To September 1 there had been 1,200,000 tons of grain moved out of Lake Superior and about the same from Lake Michigan.

The changes in ownership of mining properties continue. The American Mining Company (Steel & Wire) have about closed negotiations for a \$500,000 deal on one of the old ranges and are very active elsewhere. Comet, whose lease to the Corrigan interests was noted last week, is found in bad condition and will require considerable work before much can be done either in unwatering or mining. Four drills are working at Hartford mine and are making satisfactory progress, though not much valuable ore has been added to the mine's known deposits so far. The find of ore recently made between Felch and Iron Mountains Menominee range, is proving excellent in both size and quality and there is great hope of its proving an important addition to the State's resources. On the Wisconsin side the Menominee range, in Mastodon, Ogal Bay, Norton & Co. have cleaned out the shaft and are getting some ore in old Alpha property, long idle. Section 15 exploration, near Ishpeming is to be equipped for heavier and more rapid work. East New York has three pumps and air blowers at work unwatering and is

Cleveland, has leased a considerable tract 6 miles west of Ely on the line of the D. & I. R., which is alleged to be a continuation of the Chandler ore bearing formation, on which he is to pay 25 cents a ton for a minimum output of 50,000 tons a year, if the ore is there. The Pike River Land Company have leased to M. Lynch lands near the west line of 60-15, where they have ore indications, on a 12 cent royalty. These lands lie some 10 miles south of Tower, toward the Mesaba, and ore there would really indicate a new range. On the other hand, lands some 6 miles due north from Tower are also under exploration and the formation is reported as very promising. Four miles east from Ely, in 32, 63-11, an exploration is to start soon in an exceedingly promising section.

D. E. W.

The Simplex Lathe Center Grinder.

The lathe center grinder here shown is intended for work upon hard centers. The attachment is centered by the centers of the lathe itself, and its grinding wheel is driven by the face plate, as shown in the engraving. The grinding wheel is brought to engage the center by either the carriage traverse or the cross slide traverse. When the speed of the lathe is from 400 to 600 revolutions the grinding wheel runs at from 6000 to 9000. This device is made by J. W. Cregar, The Bourse, Philadelphia.

The "Elba Societa di Miniere en Alti Forni" is the title of a company just organized at Genoa, Italy, with a capital of \$3,000,000, to acquire the Elba mining concession and the blast furnaces and other property and equipments connected with the iron mines in that island. Schneider & Co. of Le Creusot, France, are understood to be interested in the concern.

Tariff in Cuba.

WASHINGTON, D. C., September 5, 1899.—The movement looking to lower tariff duties in Cuba, described in these columns last week, has received a new impetus both as to Cuba and Porto Rico from recent developments in the administration of the affairs of those islands. As to Cuba an important report has been made to the Secretary of War, from which it appears that, except for the item of the maintenance of an armed force of United States troops in Cuba, the island with its present revenues is more than self supporting, and the people are clamoring for lower duties, especially on machinery, implements and tools of all kinds, which are necessary to the development of the industries of the island. As to Porto Rico the Insular Commission, which went out of existence on the 1st inst., has made a report to the Secretary of War, in which it is earnestly recommended that the present tariff duties be materially reduced on all products coming from the United States, with the purpose in view of establishing mutual free trade as soon as Congress can be induced to grant the necessary authority to abolish the present tariff on Porto Rican goods coming into the United States.

For some weeks officials of both War and Treasury Departments have been giving serious attention to the question as to whether the present tariff schedules provided by the War Department for both Cuba and Porto Rico are in keeping with the modified condition of affairs that has followed the restoration of peace and the comparative rehabilitation of the industries of the islands. When the War Department first took up the question of a tariff for the islands it was decided to frame the schedules on a basis that would cause as little disturbance as possible to industries that had been fostered under Spanish rule. On this basis the first tentative schedules were promulgated. Subsequently Special Commissioner Robert P. Porter satisfied himself from a comprehensive tour of Cuba and Porto Rico that the tariff levied by the Spanish Government were higher than local conditions warranted, Spain having been able to maintain a further high revenue point on all classes of importations, for the reason that there were no competing manufactures in the islands which could be substituted for foreign merchandise. Many of the duties levied by Spain would have been prohibitory had there been any domestic source of supply. As the result of this investigation the present tariff was formulated, which it is conceded displayed wisdom in view of the conditions then prevailing, but which the administration is now becoming convinced is much too high for the welfare of the people of the islands. The present demand is for the construction of a scientific tariff for Cuba and Porto Rico, which shall open up an important market for American goods and which shall give to the United States the advantages to be enjoyed from a discriminating differential system of rates, under which American goods may be shipped into the islands on payment of duties averaging at least 20 per cent. less than those originating in other countries. The basis of this reduction is found in the concessions usually made in reciprocity treaties, and is sufficient to guarantee to the United States a very large proportion of the trade of both islands, especially in view of the low freight rates secured by reason of their proximity.

In view of the fact that no contention is made that the present tariff on Cuban products is maintained for any purpose except that of revenue, it is interesting to note that the showing which the administration of Cuban affairs has made during the past six months indicates that the tariff on many lines of goods can safely be materially reduced, especially as it is by no means certain that a cut of 20 or 25 per cent. would not result in an actual increase in customs revenue. Figures taken from a report just made by the Division of Customs and Insular Affairs of the War Department show that the receipts from customs and other sources in the six months ending June 30, 1899, were nearly \$7,000,000, while the disbursements on all accounts were but \$5,500,000, leaving a net balance of nearly \$1,500,000. While this amount does not seem large as compared with customs figures in the United States, it will be noted that the surplus amounts to more than 20 per cent. of the total revenues. A proportionate surplus in the United States would amount to over \$100,000,000, and would call for prompt legislation to reduce the revenues.

The final report of the Insular Commission—which should not be confounded with the Division of Customs and Insular Affairs of the War Department—makes a strong plea for prompt and vigorous action in the reformation of the tariff and customs regulations now in force in the islands. Commissioner Watkins, who made a special study of the question, says in his report:

"I would recommend as an encouragement on the part of this Government to parties desiring to start new enterprises in Porto Rico that materials of all kinds and appliances used in new enterprises that will develop the

island and add to its wealth a taxable value be admitted free of duty.

"Since the American occupation Spain has put practically prohibitory restrictions on the products of Porto Rico. Porto Rico, therefore, now looks to the United States for a market. The people urge that the tariff on her two principal products, sugar and tobacco, is ruinous to the planter, and that as they are now a part of the United States there should be the same trade relations existing between Porto Rico and the United States as between different States of the Union. I am of the opinion that to adopt such a course would be a broad and statesman like policy. The benefits of trade furnished by an exchange of the products of the island and the States would furnish a reciprocal compensation for the act."

Supporting Commissioner Watkins' argument a statement has been prepared from Government statistics, presenting a balance sheet between the United States and Porto Rico under free trade which would stand about as follows:

American exports to Porto Rico, \$2,000,000; plus Spanish exports, which would be replaced from this country, \$5,000,000; total, \$7,000,000.

Porto Rican exports to the United States, \$2,250,000; plus exports to Spain, most of which would be diverted to this country, \$3,000,000; total, \$5,250,000—principally coffee, fruit and sugar.

It is claimed that these figures show that practically the only American interests served by the continuation of present conditions are those of the sugar producers, while diversified interests in this country and the interests of the inhabitants of the acquired territory are sacrificed, not to mention the delay of prospective development and business investment of American capital. Another important consideration, bearing on the administration's policy with regard to all its recently acquired territory, is the fact that in these islands the climatic conditions admit of the production of articles which cannot be produced in this country, and for which we pay foreign countries about \$250,000,000 annually.

A feature of the present condition of affairs in Porto Rico which calls for prompt attention in the interest of American manufacturers and exporters, especially of machinery, agricultural implements, &c., which now constitute an important feature of this trade, is described in the last report of the Insular Commission, as follows:

"It is the practice at San Juan to levy very heavy license taxes on persons engaged in importing goods. Such taxes on a merchant who imports over \$10,000 a year amount to about \$2400 before he can begin business and prohibit the delivery of imported goods to any one who has not paid the tax.

"The license taxes on importers ought not to be assessed at any greater rate than is taxed upon other general business in the city. If the other merchants are left free importers ought to be free, and especially a merchant or other person ought to be allowed to import the goods he sells or uses without paying a licensed importer a commission therefor.

"It has been the custom, and is now the practice at Mayaguez and other places, to charge for the benefit of the local municipality a duty on all articles exported at that place so that farmers who export coffee, sugar, fruit, &c., are met by the tax collector with onerous charges. We think all charges on exports should be prohibited."

The President and his advisors are now seriously considering the wisdom of making important reductions in the Cuban and Porto Rican tariffs without waiting for the action of Congress as to the reduction of the United States tariff on products imported from the islands. There can be no doubt of the authority of the Executive to modify the Insular tariffs at his pleasure, and the point has also been raised that the President has power, so far as Porto Rico is concerned, to proclaim it a part of the territory of the United States and to extend our customs laws to it, thereby establishing free trade without Congressional action. There is doubtful authority for this proposition, however, and it does not seem likely that any such action will be taken before Congress has had an opportunity to deal with the subject.

The only opposition to the proposed reduction in the Cuban and Porto Rican tariffs comes from those who urge that the surplus revenues should be utilized in defraying the cost of maintaining the United States Army in the islands, but this proposition is sharply assailed by those who point out that a tariff framed on such lines would be wholly unscientific and would burden the people. It is argued with much force that if the mission of the United States is as humanitarian as is claimed the present tariff on articles in common use should be so reduced as to constitute a substantial as well as a highly rational measure of relief to the struggling people of Cuba.

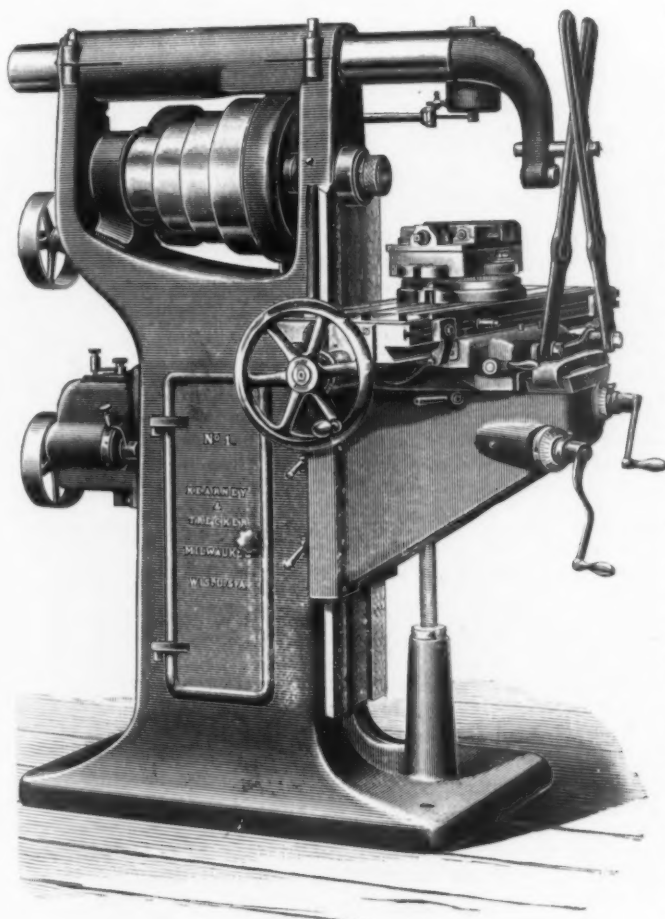
W. L. C.

A general strike of seamen and steamer firemen, which has been threatened for some time in England, was declared on Monday, owing to the refusal of the British

shipowners to accept the demand of the Seamen's and Firemen's Union for a general advance in the wages of sailors and firemen in British mercantile vessels. The manifesto of the union ordering the strike includes all the ports in the United Kingdom.

Kearney & Trecker Plain Milling Machine.

The milling machine here illustrated was designed with a view to the greatest possible range with the least possible overhang of parts. The result is a rugged compact machine capable of taking the heaviest cuts and equally as efficient on general work requiring great range and ease of adjustment as on manufacturing operations calling for compactness, strength and ease of manipulation. The column is cast in one piece, the metal being properly distributed to insure strength and rigidity. The spindle has a $\frac{3}{8}$ -inch hole through its entire length, and the front end is bored to receive No. 10 B. & S. taper shanks on the cutters. The front end is threaded to re-



KEARNEY & TRECKER PLAIN MILLING MACHINE.

ceive a chuck or large cutters and the thread is protected from injury by a knurled collar. The spindle boxes are of bronze, the front one being solid and tapered inside. A lock nut is provided for taking up wear on the taper of the spindle. The rear box is tapered outside and is straight inside. The cone pulley has four steps and is heavily backgeared, all gearing here and elsewhere being covered for protection from dirt as well as to prevent injury to workmen. The overhang arm has an adjustable bronze bushing to support the end of the arbor, while the arm braces afford additional stiffness. These braces are so constructed that they can be removed or replaced on the machine without taking off any nuts. Ball bearings are provided to take the thrust of the elevating and table screws, and all adjustments are indicated by dials in thousandths of an inch.

The machine has screw feed with a convenient quick return. The feed is automatic in either direction through 28 inches, is thrown in or reversed by the same handle on the front of the machine, and can be tripped either automatically or by hand as easily under full cut as when running light. A dial plate plainly shows where to place the lever to obtain any one of the 12 changes of feed, which can be instantly changed without shifting a belt or re-

moving a gear. The feed screw has compensating nuts, in fact all parts of the machine subject to wear being provided with means for adjustment. The table is 10 x 44 inches over all, including oil pans, 10 x 36 inches being working surface, with three tee slots, 11-16 inches wide. The knee has 20 inches of vertical movements, is a box section and is without hole in the top, which would admit dirt to the working parts or cause weakness under side strains. The saddle has 8 inches of adjustment in line with the spindle. The vise swivels on a graduated base, from which it can be removed and used as a plain vise when desired. The manufacturers are Kearney & Trecker, Milwaukee, Wis.

Canadian Notes.

The Steel Famine.

Of the unprecedented prosperity Canada is enjoying there is perhaps no truer index than the number of building contracts now in hand all over the country, but especially in the main centers of industry. Dwellings, manufacturing, business blocks, banking houses, public buildings, bridges, &c., are rising fast in places like Toronto and Montreal, and in dozens of smaller places which industrial enterprise, mining developments, or some new turn in transportation have suddenly revived. For many of the structures now going up steel is required, and steel it is now found next to impossible to get. Mention was made in a previous article of the standstill to which many large building contracts were brought in Montreal, owing to the lack of steel. It is to be borne in mind that Canada is dependent on outside sources of supply for the great bulk of the steel consumed here. The Nova Scotia Steel Company are producers of that material, and the Hamilton Steel & Iron Company will soon be manufacturing it, as likewise the Dominion Steel & Iron Company will be, but at present all that we use, with the exception of a comparatively small quantity, is imported. In Toronto the reconstruction of the St. Lawrence market has been arrested by the lack of steel, word having been received from the Carnegie Company a few days ago that the material could not be laid down for a considerable time yet. Consequently the Dominion Bridge Company of Montreal, who have the St. Lawrence Market contract, do not expect to have the steel in their yards before January or February. In Toronto, also, there are two bridges to be built over the Don. For this work the Hamilton Bridge Company have the contract. That company have just asked for two months' extension of time, on the ground that they cannot get the structural steel to proceed with the work. In the Toronto City Hall, a new building, which has cost \$2,500,000 up to date, the contract for putting in the steel work of the prisoners' cells has also been checked. Dozens of contracts for other notable buildings in Toronto are delayed. Several of the contractors will experience heavy losses, as their tenders were put in, in some cases, before the rise in steel began, and their estimates are based upon the prices of half a year or a twelvemonth ago.

In an interview on the subject, Samuel S. Martin of the Rice Lewis Company, wholesale hardware and metal merchants, said: "In this country it is next to impossible to procure any structural steel, and many buildings now in course of construction will wait a long time before they are completed."

Cape Breton Steel Plants.

In an interview with the representative of the Halifax Herald, H. M. Whitney, president of the Dominion Steel & Iron Company, stated that two of the four furnaces would be in blast by January 1, 1901. The total works to be built will cost, he said, \$7,000,000 at least, and possibly \$9,000,000. At Sydney, he considered, the raw material can be assembled more cheaply than at any other point in the world. Manufacturing is to be done chiefly for the foreign market. The four blast furnaces are to have a daily capacity of 250 to 350 tons each, and the steel mill one of 800 tons per day. In steel making the open hearth process will be used. Open hearth steel, Mr. Whitney said, commands the highest price in the market, and is growing more and more in favor with manufacturers and consumers.

A shipbuilding plant is contemplated. A pier adjoining the present International pier for handling iron ore will be built. Near this will be the 400 coke ovens. Next will be the four blast furnaces. Then the ten steel furnaces. Between the blast furnaces and the steel works will be the machine shop and foundry. Beyond the steel works will come the rolling mill. Thus, Mr. Whitney thought, there would be need for every inch of the 450-acre site. Referring to the report that the Nova Scotia Steel Company might go to Cape Breton and establish a great plant, he said:

"If they come it will be a good thing, and the better it will be for the development of Cape Breton. There is

room in Cape Breton for more than one. The Nova Scotia Company are now shipping ore from the areas at Belle Isle at a rate of 2500 tons a day, sending it to Rotterdam, Baltimore and Ferrona. These shipments will cease when their present contracts are ended. Our property at Belle Isle comprises about four-fifths of the whole."

Trade Items.

Contracts were let on the 29th ult. for the construction in Hamilton of a building for the Edgerton Storage Battery Company. The company will shortly be capitalized at \$500,000. The Hamilton factory will be a branch of the Philadelphia works.

The Hoeffner Zinc Refining Company will shortly erect a large factory in the vicinity of the Battery Company's works.

Dr. Coleman of the Ontario Bureau of Mines has sent in a letter giving some results of his examination of the Parry Sound copper deposits. He says the widespread occurrence of copper is very striking. So far the only properties that can yet be called mines are the McGowan and the Wilcox, and they are not yet sufficiently developed, he says, to make them certainties. "But," he adds, "both the McGowan Mine and the Wilcox seem to have some thousands of tons of marketable ore in sight, in the case of the latter property running low in copper, about 4 per cent., according to Dr. Elftman, geologist and assayer for the Parry Sound Company. The only test made on a large scale was the shipping of six carloads of ore, about 140 tons, to the Orford smelting works, the returns being about 15 per cent. copper for four carloads, and about 16 per cent. for the other two. The value of the copper contents of the carloads was \$7570, and the balance returned as net proceeds, \$5399. The Orford Company are said to have plans for a smelting furnace on Lake Huron, and will buy any ore up to or above 4 per cent. at current rates, less 30 cents per ton freight. On the whole it looks as though there will be at least a few good mines here."

The Midland Smelting Works are being pushed forward rapidly. A furnace has been purchased, which was built for use in the South, but it was never blown in, and it is now on its way to Midland. It is expected that it will be blown in by January 1 next. Before the close of navigation a supply of ore will be laid down, much of it coming from Michipicoton.

C. A. C. J.

The Collapse of the Chicago Coliseum.

To say that the falling of the Coliseum in Chicago last week was an accident that should never have happened is to express a very mild criticism. If such an occurrence can be classed as an accident liable to take place at any time under similar circumstances, the training of our engineers and construction foremen is distressingly faulty. Naturally attempts are being made to evade the responsibility for the destruction of property and the deplorable loss of human life, but some one is undoubtedly culpable in the highest degree for his gross carelessness. Twelve large steel arches had been erected, each of 165 feet span, placed 25 feet apart. Common sense, or the most ordinary prudence, would seem to dictate that as soon as two of these arches had been erected they should have been so braced or tied together that they could have withstood any lateral shock, and every additional arch should have been treated in the same way. The fact that all were erected, and all went down like a row of bricks when the end arch fell against its neighbor, proves that they were braced very imperfectly and that no safe calculation had been made to guard against such an occurrence. Elaborate investigations can be instituted as to what caused the first arch to sway and fall over, and severe blame may be visited on the head of the man who ordered tackle to be fastened to it improperly for the purpose of taking down the erecting crane, but that arch would not have fallen if it also had been sufficiently braced. The excuse has been published that the lack of bracing was caused by the non-delivery of the steel by the mills having the contract for it, but such an excuse can receive little attention from those who mourn for their dead. The building contractors were evidently in such haste to get all the arches in position that apparently they took chances on what seemed to be a remote contingency.

Doubtless this accident will be cited by our foreign trade rivals as an argument against the use of American steel or the purchase of American structural work. Some of our own daily newspapers have been inclined to ascribe the fall of the incomplete structure to possible faulty material or bad workmanship in some portion of the arches. But the cause is so obvious that any reflections on the material used should be at once dismissed. The arches did not break and fall, but were tumbled over.

American Steel & Wire Listed.

Official Statement Submitted to Stock Exchange by The American Steel & Wire Company.

At a meeting of the Committee on Stock List of the New York Stock Exchange, held last week, the \$40,000,000 preferred and \$50,000,000 common stock of the American Steel & Wire Company were admitted to the regular list. The official statement submitted by the officers of the company contains paragraphs of the charter of the organization, which are of interest at this time.

Comment is made upon the fact that the company own the following plants:

Plants Acquired, Owned, and Controlled.

American Steel & Wire Company, Illinois, plants at Anderson, Ind.; DeKalb, Ill., 2; Evanston, Ill.; Joliet, Ill., 2; St. Louis, Mo.; Cleveland, Ohio, 2; Salem, Ohio; Findlay, Ohio; Allentown, Pa.; Beaver Falls, Pa.; Rankin, Pa. Washburn & Moen Mfg. Company, plants at Worcester, Mass., 2; Waukegan, Ill.; San Francisco, Cal. Worcester Wire Company, plants at Worcester, Mass. Cleveland Rolling Mill Company, plants at Cleveland, Ohio; Newburgh, Ohio, and iron mine property at Negaunee, Mich. Indiana Wire Fence Company, plant at Crawfordville, Ind. Garden City Wire & Spring Company, plant at Chicago, Ill. Consolidated Barb Wire Company, plants at Joliet, Ill.; Lawrence, Kan. Laidlaw Bale Tie Company, plant at Joliet, Ill. Cincinnati Barb Wire Fence Company, plant at Cincinnati, Ohio. Union Rolling Mill Company (only), plant at Cleveland, Ohio, known as Emma Furnace. Portage Iron Company (part), plant at Duncansville, Pa. Newburgh Wire & Nail Company, plant at Newburgh, N. Y. Allegheny Furnace Company, plant at Allegheny, Pa. Pittsburgh Wire Company, plant at Braddock, Pa. Shenango Valley Steel Company (part), plant at New Castle, Pa. Oliver Wire Company, plant at Pittsburgh, Pa. Oliver & Snyder Steel Company, plant at Pittsburgh, Pa. Shoenberger Steel Company, plant at Pittsburgh, Pa., also coal land and coke ovens in Fayette and Westmoreland counties. Puget Sound Wire Nail & Steel Company, plant at Everett, Wash. Edgar Zinc Company, plants at St. Louis, Mo., Cherryvale, Kan. Puritan Coke Company, plant and land at Baggaley, Pa. Puritan Store Company, store at Baggaley, Pa. Clark & Sauntry, mine at Virginia, Minn. Alpena Mine, mine at Virginia, Minn. Cuff Iron Company, mine at Iron Mountain, Mich.

The plants are all owned in fee except the following:

Shoenberger Steel Company.
Edgar Zinc Company.
American Coke Company.
American Supply Company.
American Mining Company.

These concerns are controlled by stock ownership.

Description of Property.

CHICAGO DISTRICT.

Anderson, Ind., Works.—Formerly of A. S. & W. Company of Illinois, originally owned by the American Wire Nail Company. Buildings are as follows: Rod mill, capacity, 6300 gross tons of wire rods monthly; wire mill, capacity, 5200 net tons of plain wire monthly; galvanizing room, capacity, 1500 net tons of galvanized wire monthly; barb wire mill, capacity, 750 net tons of barb wire monthly; nail mill, capacity, 66,000 kegs of wire nails monthly.

Crawfordville, Ind., Works.—Formerly of Indiana Wire Fence Company. There are two buildings, one used for the manufacture of barb wire, nails and field fence and the other for a warehouse.

DeKalb, Ill., Works.—Two plants formerly of the A. S. & W. Company of Illinois, and originally owned, one by I. L. Ellwood Mfg. Company, and one by Ellwood Wire & Nail Company. Buildings are as follows: Barb wire mill, capacity, 4500 net tons monthly; field fence mill, capacity, 1400 net tons monthly; nail mill, capacity, 50,000 kegs monthly; wire mill, capacity, 4200 net tons monthly; galvanizing mill, capacity, 4000 net tons monthly.

Evanston, Ill., Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by McMullen Fence Company. There is one building in which there are field fence machines, capacity, 40 tons monthly; poultry netting machines, capacity, 350 tons monthly.

Joliet, Ill.—Scott Street Mill, formerly A. S. & W. Company of Illinois, and originally owned by Consolidated Steel &

Wire Company. Buildings consist of wire mill, capacity, 10,000 tons monthly; galvanizing room, capacity, 4000 tons monthly; barb wire mill, capacity, 3000 tons monthly; nail and staple mill, capacity, 100,000 kegs monthly.

Rockdale Mill, formerly of A. S. & W. Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Buildings consist of wire mill, capacity, 6000 tons monthly; barb wire mill, capacity, 2800 tons monthly; field fence mill, capacity, 1200 tons monthly; poultry netting mill, capacity, 160 tons monthly; bale tie mill, capacity, 14,000 bundles monthly; galvanizing room, capacity, 4000 tons monthly.

Bluff Street Mill, formerly of Consolidated Barbed Wire Company, and originally owned by Ashley Wire Company. Buildings consist of mill building containing wire drawing blocks, capacity, 3000 tons monthly; galvanizing room, capacity, 1200 tons monthly; nail machines, capacity, 16,000 kegs monthly; barb wire machines, capacity, 1250 tons monthly; field fence machines, capacity, 260 tons monthly; bale tie machines, capacity, 5000 bundles monthly; staple machines, capacity, 200 kegs monthly.

Meeker Avenue Mill, formerly of Laidlaw Bale Tie Company, and originally owned by Clark & Windsor Spring Company. Main building contains wire drawing blocks, capacity, 700 tons monthly; bale tie machines, capacity, 50,000 bundles monthly.

Chicago, Ill.—Garden City Works, formerly owned by Garden City Wire & Spring Company. Buildings consist of wire mill, capacity, 250 net tons monthly; nail mill, capacity, 3500 kegs monthly; spring mill, capacity, 200 net tons monthly. Wire drawn is principally mattress and broom wire, and springs are principally upholsterers', machinery and bed springs.

Lawrence, Kan., Works.—Formerly of Consolidated Barb Wire Company. Plant consists of two acres (leasehold) and building used for manufacture of plain wire, nails, barb wire and field fence.

St. Louis, Mo., Works.—Formerly of American Steel & Wire Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Wire mill, capacity, 3600 net tons monthly; galvanizing room, capacity, 2500 net tons monthly; barb wire mill, capacity, 1750 net tons monthly; nail mill, capacity, 20,000 kegs monthly.

Waukegan, Ill.—Waukegan Works, formerly of Washburn & Moen Mfg. Company. Buildings consist of wire rod mills, three, capacity, 12,500 gross tons monthly; barb wire mill, capacity, 1400 net tons monthly; wire mill, capacity, 5000 net tons monthly; galvanizing room, capacity, 5000 net tons monthly; bale tie mill, capacity, 19,000 bundles monthly; tinning department, capacity, 90 net tons monthly; signal strand department, capacity, 328,570 feet monthly; staple department, capacity, 1200 kegs monthly; cold rolling department, capacity, 30 net tons monthly; Venetian red department, capacity, 90 net tons monthly; copperas department, capacity, 230 net tons monthly; straightened and cut wire, capacity, 175 net tons monthly. There is manufactured at this point besides the above: Copper wire, copper trolley wire, broom and mattress wire, flat and oval wire, pump rods and galvanized steel and B. B. telegraph wire. There is a well organized railroad at this plant (Waukegan & Mississippi Valley Railroad Company), operating the track system on the plant with its own engines and cars, and connecting with E. J. & E. and C. & N. W. Railways.

Cincinnati, Ohio, Works.—Formerly of Cincinnati Barbed Wire Fence Company. Buildings consist of wire mill, capacity, 4500 net tons monthly; galvanizing room, capacity, 4500 net tons monthly; nail mill, capacity, 10,000 kegs monthly; barb wire mill, capacity, 2000 net tons monthly; field fence department, capacity, 20 net tons monthly; bale tie department, capacity, 3500 bundles monthly; staple department, capacity, 2300 kegs monthly.

CLEVELAND DISTRICT.

Central Furnaces, Cleveland.—Formerly of Cleveland Rolling Mill Company. Property consists of two blast furnaces, capacity, 18,000 gross tons pig iron monthly, also a new blast furnace in process of construction, capacity, 15,000 tons monthly, making total capacity of Central plant 33,000 tons of pig iron monthly.

Emma Furnace, Cleveland.—Formerly of Union Rolling Mill Company. Property consists of one blast furnace, capacity of 6500 gross tons pig iron monthly.

Consolidated Mill, Cleveland.—Formerly of A. S. & W. Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Buildings consist of wire rod mill, capacity, 7500 gross tons monthly; wire mill, capacity, 6500 net tons monthly; barb wire mill, capacity, 2000 net tons monthly; galvanizing room, capacity, 2000 net tons monthly; nail mill, capacity, 50,000 kegs monthly; field fence department, capacity, 250 net tons monthly; staple department, capacity, 1200 kegs monthly.

American Mill, Cleveland.—Formerly of A. S. & W. Company of Illinois, and originally owned by American Wire Company. Buildings consist of wire rod mills, two, capacity, 9100 gross tons monthly; wire mill, capacity, 4500 net

tons monthly; galvanizing room, capacity, 4000 net tons monthly; straightened and cut wire department, capacity, 300 net tons monthly; cold rolling department, capacity, 50 net tons monthly; tinning department, capacity, 425 net tons monthly. Also manufacture coppered wire.

HP Mill, Cleveland.—Formerly of A. S. & W. Company of Illinois, and originally owned by HP Nail Company. Buildings consist of wire rod mill, capacity, 5200 gross tons monthly; wire mill, capacity, 5000 net tons monthly; nail, spike and tack mill, capacity, 130,000 kegs monthly; galvanizing room, capacity, 1200 net tons monthly; chain department, capacity, 150 net tons monthly.

Findlay, Ohio, Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by Salem Wire Nail Company. Buildings consist of wire mill, capacity, 3000 net tons monthly; nail mill, capacity, 60,000 kegs monthly.

Salem, Ohio, Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by Salem Wire Nail Company. Buildings consist of wire mill, capacity, 2600 net tons monthly; nail mill, capacity, 45,000 kegs monthly.

Newburgh, Ohio, Works.—Formerly of Cleveland Rolling Mill Company. Property consists of one blast furnace, capacity, 4000 gross tons pig iron monthly; Bessemer steel plant and rolling mill, capacity, 32,000 gross tons blooms and billets monthly; two open hearth steel furnaces, capacity, 1600 gross tons monthly; four open hearth steel furnaces in course of construction; wire rod mills, two, capacity, 10,500 gross tons monthly; merchant and structural mill, capacity, 6500 gross tons monthly of beams, angles, channels, hoops, &c.; wire mill, capacity, 7000 net tons monthly; galvanizing department, capacity, 2400 net tons monthly; nail mill, capacity, 20,000 kegs monthly; barb wire mill, capacity, 1000 net tons monthly; staple department, capacity, 2000 kegs monthly; tinning department, capacity, 500 net tons monthly; cold rolling department, capacity, 40 net tons monthly; straightening and cutting department, capacity, 750 net tons monthly; shafting department, capacity, 250 net tons monthly; copperas mill, capacity, 700 net tons monthly; also steel foundry, stripper building, ladle house.

PITTSBURGH DISTRICT.

Allegheny Works.—Formerly of Allegheny Furnace Company, operated by Oliver & Snyder Steel Company. Property consists of one blast furnace, capacity, 12,000 gross tons pig iron monthly, with boiler and engine houses and cast house. Note: Another blast furnace is in course of construction, which will increase output to 26,000 gross tons monthly.

Beaver Falls Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Buildings consist of wire rod mill, capacity, 8500 gross tons monthly; wire mill, capacity, 5500 net tons monthly; galvanizing room, capacity, 1700 gross tons monthly; nail mill, capacity, 75,000 kegs monthly; barb wire mill, capacity, 1000 net tons monthly; staple department, capacity, 1000 kegs monthly.

Braddock Works.—Formerly of Pittsburgh Wire Company. Located on Monongahela River, and having dock facilities for shipping. Buildings consist of wire rod mill, capacity, 6500 gross tons monthly; wire mill, capacity, 5000 net tons monthly; galvanizing room, capacity, 2000 net tons monthly; nail mill, capacity, 45,000 kegs monthly.

New Castle Works.—Formerly of Shenango Valley Steel Company. Building consists of wire rod mill, capacity, 7000 gross tons monthly; wire mill, capacity, 6500 net tons monthly; nail mill, capacity, 150,000 kegs monthly.

Rankin Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Buildings consist of wire rod mill, capacity, 8500 gross tons monthly; wire mill, capacity, 8500 net tons monthly; barb wire mill, capacity, 2500 net tons monthly; galvanizing room, capacity, 4200 net tons monthly; nail mill, capacity, 75,000 kegs monthly; field fence department, capacity, 1250 net tons monthly; staple department, capacity, 3500 kegs monthly.

Shoenberger Works.—Owned by Shoenberger Steel Company. The American Steel & Wire Company of New Jersey own all the shares of the capital stock of the Shoenberger Steel Company. Property consists of two blast furnaces, capacity, 13,500 gross tons pig iron monthly; Bessemer steel plant, capacity, 11,000 gross tons ingots monthly; O. H. steel plant, capacity, 4000 gross tons ingots monthly; blooming and billet mill, capacity, 10,000 gross tons blooms and billets monthly; plate mill, sheet mill, skelp mill (Juniata brand), capacity, 5500 gross tons plates, 600 gross tons sheets and 2000 gross tons skelp monthly; horse and mule shoes, capacity, 40,000 kegs monthly (horse and mule shoes and toe calks). Improvements are now under way which will increase the capacity of the Bessemer plant and billet mill to double its present capacity.

South Side Works, Pittsburgh.—Formerly of Oliver Wire Company. On Monongahela River. Buildings consist of wire rod mill, capacity, 8000 gross tons monthly; wire mill, capacity, 10,000 net tons monthly; galvanizing room, capacity, 4200 net tons monthly.

ly; barb wire mill, capacity, 4500 net tons monthly; nail mill, capacity, 120,000 kegs monthly; staple department, capacity, 4000 kegs monthly; field fence department, capacity, 100 net tons monthly. Can also manufacture box straps and straightened and cut wire in limited amount.

Twenty-sixth Street Works, Pittsburgh.—Formerly of Oliver & Snyder Steel Works. Property consists of Bessemer steel plant, capacity, 17,000 gross tons ingots monthly; rolling mill, capacity, 16,000 gross tons blooms and billets monthly.

NEW YORK DISTRICT.

Allentown, Pa., Works.—Formerly of A. S. & W. Company of Illinois, and originally owned by Consolidated Steel & Wire Company. Buildings consist of wire rod mill, capacity, 6000 gross tons monthly; wire mill, capacity, 6000 net tons monthly; barb wire mill, capacity, 3300 net tons monthly; galvanizing room, capacity, 4000 net tons monthly; nail mill, capacity, 45,000 kegs monthly.

Duncansville, Pa., Works.—Formerly of Portage Iron Company and then operated by A. R. Whitney & Co. Buildings consist of wire rod mill, capacity, 1800 gross tons monthly; wire mill, capacity, 1500 net tons monthly; nail mill, capacity, 30,000 kegs monthly.

Newburgh, N. Y., Works.—Formerly of Newburgh Wire & Nail Company and then operated by Kilmer Mfg. Company. Buildings consist of wire rod mill, capacity, 2500 gross tons monthly; wire mill, capacity, 1600 net tons monthly; barb wire mill, capacity, 700 net tons monthly; galvanizing room, capacity, 700 net tons monthly; nail room, capacity, 12,000 kegs monthly.

SAN FRANCISCO DISTRICT.

San Francisco, Cal., Pacific Works.—Formerly of Washburn & Moen Mfg. Company. Buildings consist of wire mill, capacity, 1200 net tons monthly; nail mill, capacity, 16,500 kegs monthly; spring shop, capacity, 70 net tons monthly; wire rope shop, capacity, 625 net tons monthly (including signal strand, armored submarine cable and street railway cable); staple department, capacity, 325 kegs monthly; also draw copper wire.

Everett, Wash., Works.—Formerly of Puget Sound Wire Nail & Steel Company. Buildings consist of wire mill, nail mill.

WORCESTER DISTRICT.

Central Works, Worcester, Mass.—Formerly of Worcester Wire Company, located on Blackstone River. Buildings consist of wire mill, capacity, 600 net tons monthly; tinning department, capacity, 300 net tons monthly; specialty department, capacity, 200 net tons monthly (including straightened and cut wire, cold rolled wire, staples, tacks, chain and bottling wire).

North and South Works, Worcester, Mass.—Formerly of Washburn & Moen Mfg. Company. Buildings consist of mainly O. H. steel plant, capacity, 4000 gross tons monthly; wire rod mills, four, capacity, 9000 gross tons monthly; wire mills, two, capacity, 6500 net tons monthly; nail mill, capacity, 13,000 kegs monthly; barb wire mill, capacity, 1250 net tons monthly; bale tie mill, capacity, 13,250 bundles monthly; galvanizing department, capacity, 2550 net tons monthly; tinning department, capacity, 850 net tons monthly. Copper is also drawn, and the following specialties are manufactured: Electrical wires of all kinds, including bare and insulated copper wires and cables; telephone and telegraph wires, rail bonds, signal strand, &c.; flat wires and flat springs, furniture, spiral and special springs of every description; pump chain, wire ropes, cables, clothes lines and strands of all kinds.

THE AMERICAN MINING COMPANY,

a New Jersey corporation, all of the stock of which is owned by the American Steel & Wire Company of New Jersey, have property as follows:

Negaunee Mine, at Negaunee, Marquette County, Mich., formerly of Cleveland Rolling Mill Company and operated by Negaunee Mining Company. The Negaunee Mine is one of the oldest producers in Michigan, its annual output being from 175,000 to 200,000 tons. The output of this mine is being increased by putting down another shaft, which will double its capacity. The company pay a royalty on the ore mined from this property.

Sauntry Mine, at Virginia, St. Louis County, Minn., purchased and owned in fee, and is one of the largest bodies of iron ore on the Mesaba range. It measures up between 45,000,000 and 50,000,000 tons of ore, although we have estimates on it running as high as 80,000,000 tons. There could easily be produced from this mine 1,000,000 tons of ore per year.

Alpena Mine adjoins the Sauntry Mine, and upon this property a cash payment has been made, and it is operated under royalty in connection with the Sauntry Mine.

Cuff Mine, located near Iron Mountain, Mich., and was formerly operated by the Cuff Iron Company. This prop-

erty is held on a royalty basis. Shipments of ore from this property are expected to commence during September, 1899.

THE AMERICAN COKE COMPANY,

a Pennsylvania corporation, the capital stock of which is all owned by the American Steel & Wire Company of New Jersey, have property as follows:

At present 400 coke ovens are in operation, and 230 additional are in course of construction.

Eight thousand one hundred acres coking coal land in Fayette County, Pa., which are about to be developed. Expect to mine all the coal needed for fuel in our Pittsburgh and Cleveland district mills, as well as supply our needs for coke.

Two thousand acres in Greene County, Pa., making the total ownership and control of our company about 10,100 acres of coal land, in which it is estimated there is at least 125,000,000 to 130,000,000 tons of coal.

THE AMERICAN SUPPLY COMPANY,

a Pennsylvania limited partnership, operate store at Baggage, Pa., in connection with American Coke Company. Own a general stock of merchandise.

THE JUNIATA COKE COMPANY,

of which the American Steel & Wire Company of New Jersey own one-half interest. Plant at Dawson, Fayette County, Pa., consists of 213 acres coal land, 110 acres surface land, 250 coke ovens and necessary railroad and other facilities for operating same. Capacity, 13,800 tons coke monthly.

STANDARD SUPPLY COMPANY,

of which the American Steel & Wire Company of New Jersey own a one-half interest. Operate store in connection with Juniata Coke Company. Own stock of general merchandise.

EDGAR ZINC COMPANY

of St. Louis, Mo., have smelting plants at South St. Louis, Mo., and Cherryvale, Kan. The Cherryvale plant is a new, modern plant, with 30 furnaces. It is now in partial operation, and will be in full operation by the middle of October, 1899. The American Steel & Wire Company of New Jersey own 80 per cent. of the capital stock of this company.

There is a bonded indebtedness of \$78,000 on the Allegheny, Pa., Works in the Pittsburgh district, said bonds having been issued by the Allegheny Furnace Company, at one time the owners of said works.

There is also a mortgage for \$22,656.25 on the South Side Works, Pittsburgh, in the Pittsburgh district. This mortgage descended from the Oliver Wire Company and is in favor of Mrs. Rachel C. Pears, and cannot be paid off during her life without her consent.

It is intended to pay off this indebtedness at maturity or before if the holders will accept. Payment has been offered but has been refused.

The balance sheet shows that the company earned from January 1, 1899, to June 30, 1899, \$4,892,048.45 net profit.

The inventory shown on the balance sheet is taken at actual cost for all raw material, with \$1 per ton added for finished product. In taking into consideration the great enhancement in the value of raw material since the taking of this inventory, the vast increase of such assets in value is readily apparent.

Stock Investments.

The stock investments shown on the balance sheet as aggregating \$5,348,242.09 represent cost thereof on the books of the company, and consist of stocks and bonds, which have all been purchased during the last six months. They are:

American Coke Company, entire capital stock	\$25,000.00
American Supply Company, Limited, entire capital stock	10,000.00
Columbia Wire Company, practically entire capital stock	41,841.10
Allegheny & S. S. Railway	500.00
Salem Iron Company	9,025.00
Falls Rivet & Machine Company	20,273.37
Iron Car Equipment Company	100.00
C. Aultman & Co.	2,867.34
Archer & Pancoast bonds	1,510.25
Continental Wire Company bonds	6,000.00
Shoenberger Steel Company, entire capital stock	3,600,000.00
Edgar Zinc Company, 80 per cent. of capital stock	400,000.00
Standard Supply Company	6,125.00
American Mining Company, entire capital stock	1,000,000.00
Waukegan & Mississippi Valley Railroad, entire capital stock	60,000.00
P. & L. E. Dock	100,000.00
Total	\$5,283,242.09
Stock and mortgage, Hutchins House, Houston, Texas	65,000.00
Grand total	\$5,348,242.09

The Iron Age.

New York, Thursday, September 7, 1899.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

Was It a Mistake?

Manufacturers of iron and steel are pondering over the peculiar conditions which now confront them, and are seriously wondering whether a mistake has not been made in advancing prices slowly. It has taken a long time to reach the present level of values since the turn was made toward better times. Regardless of the opinions of buyers, it is a fact susceptible of proof that manufacturers themselves did almost everything possible to prevent prices from rising any further after the first slight reaction from the profitless prices ruling during the worst of the depression. As soon as they saw a reasonable margin of profit, as if concerted action had been agreed upon, they continued to accept business in steadily increasing quantities without advancing prices, and persisted in maintaining that policy until the world wondered at their forbearance. Always before, with much less justification, prices had advanced as the demand improved and comparatively high values were reached quickly. But reactions followed even more quickly, and in the hope of building the movement toward better times on a firm and more durable foundation, the policy of conservatism was apparently adopted by the leaders in the trade and the others followed. The result has been that the volume of business has grown until it has surpassed all precedent, and moreover continues to grow. The time came when advances in price could no longer be resisted, it is true, and as compared with rates ruling a year since very high prices now obtain, but the upward movement has been remarkably gradual. It has not gone by leaps and bounds as in former periods of prosperity. Buyers have thus been educated to higher prices, having been given plenty of time to consider each step forward, and the demand has not been checked.

It is pointed out, however, by close students of the situation, that perhaps the interests of all concerned would have been promoted if trade had been checked some months since by such a sharp jump in prices that buyers would have refused to pay them except in cases of imperative necessity. The consequences of the gradual advance in prices are seen in the congested condition of the trade. Every establishment capable of producing iron and steel is being driven to its utmost capacity, and fresh orders cannot be taken except for delivery beginning far in the future. The trade has had no breathing spell, no time to catch up. Contracts have piled upon contracts, regardless of such slight matters as \$1 advance upon the last purchase made, or of \$2 or \$3 advance. Latterly, the manufacturers have grown either wiser or less conservative in making advances and sometimes have jumped their quotations \$5 per ton. Nobody will be seriously hurt if such advances should for a time check the placing of new business. With general trade in sound condition the demand for iron and steel will not be killed. As soon as the works catch up with deliveries and need more business, naming reasonable prices, the orders will materialize.

Lumber Prices and the Iron Trade.

The present condition of the lumber market merits attention at the hands of the iron and steel trades perhaps more than may be apparent at first thought. Like many other materials, lumber has scored a notable advance in price since the beginning of the recent improvement in industry and trade in this country, coincident with a greater degree of activity throughout the world. But unlike some other materials the advance in lumber has been attended by conditions which indicate a continued higher level of prices than has prevailed in the past. It is plain that the most extensive forest must become exhausted in time if cut into constantly while no provision is made for replacing the felled trees. This is just what has been happening in this country for 250 years, but the disappearance of one forest after another has caused little concern, because of the forests which still remained. The situation to-day, however, is that the more accessible forests in most parts of the country have become exhausted, together with the greater part of the total supplies of some important varieties of woods, and a further heavy demand can be met only on a higher level of prices. It is not meant that a lumber famine has begun, but the exhaustion of the accessible forests is near enough to suggest its possibility and the wisdom of efforts to avert it.

The United States Government has not begun too soon to manifest an interest in this subject by appointing forestry officials and trying to protect such forests as remain from ruthless destruction. The authorities in certain of the States likewise have taken measures both to protect existing forests and to stimulate the planting of trees to replace such as may be cut down. The treatment of the forestry question in some of the old world countries may well be adopted in our own land without any suggestion that we have lost our independence thereby, for this has become a thoroughly practical science, and science knows no geographical nor political boundaries. "It is clearly as much a duty of the public," some one has written, "to prevent forest fires as to prevent and extinguish fires in cities," and the prevention of fires is only one of the means necessary to forest protection, though it is a very important feature. The persons who think our forests inexhaustible should reflect upon the disappearance of the bison from our Western prairies, of many kinds of fish from certain waters and of various other things of which we once seemed to have too great a plenty. Even the forests have disappeared from some States, and at a rate which would leave all our States without a tree at the end of another century.

If there existed anywhere in the world an excuse for indifference on such a point as this one might expect to find it in Burmah, which only in recent years has become embraced in British India. With an extensive area, but sparsely settled, this province is yet for the most part covered with a virgin forest growth. Yet the Government, in order that the most may be made of the natural resources of the country, forbids the cutting of a single tree—save on privately owned grounds—without official supervision, while plantations are being formed, at the public expense, of every forest species of value, from teak to caoutchouc. Hence Burmah need never fear a timber famine, while the people of the United States might do a vast deal of forestry work without getting back to the position which we occupied, not so long ago, of being abundantly supplied with wood.

It is true that the disappearance of wood as a building material and for use for other constructive purposes would open a wider field for the iron and steel trades.

Already we have seen the substitution of iron for wood in shipbuilding, bridge work, railway cars, the fencing of large farms and various details of architectural work. For some of these purposes iron or steel serves better than any other material, and would be used in any event, but there are other cases where timber construction will be preferred so long as the price does not render it uneconomical. We need both classes of materials. It might seem that the iron producer would welcome every new demand, but there is the possibility that the exhaustion of wood and the consequent heavier call for iron would raise prices of the metal to an inconveniently high range and keep them there.

But this is not the only consideration which makes forest conservancy desirable. In older countries than ours the belief prevails that the removal of the forests has affected the rainfall, and brought an alternation of droughts and freshets, instead of the former continuous flow of streams which afforded reliable water power—such as proves so desirable for manufacturing and in the generation of electricity. France alone, within a few years, has expended \$10,000,000 on the afforestation of the upper reaches of the mountainous and submountainous streams, with a view to getting back to the old time conditions of volume and regularity of the water supply. There are still other considerations in behalf of intelligent forest control which ought to apply as well to the United States as to France or Switzerland, Germany or Austria, or even India. It may occur to some persons that a still greater exhaustion of timber in this country need occasion no anxiety, on account of the great forests, practically untouched, still to be found in certain parts of the world. Granting the quality of such woods to be suitable for our purposes, their remoteness alone would be a great obstacle to our making use of them. Of what value to us would be the forests of Bolivia, for example—a country larger than any European State, except Russia, but without a seaport or a navigable river to the sea?

The question of forestry merely as a science may be left to those whose tastes incline them to study it, but reasons will occur to every ironmaster why it would not be desirable to have our native wood supplies disappear, and these reasons should lead them to support all legitimate effort for preventing any unnecessary destruction of the forests.

The Chicago Trust Conference.

Much interest is being taken in the national conference to be held in Chicago on the 13th to the 16th inst., under the auspices of the Civic Federation of that city. The subject for consideration and discussion will be "Trusts and combinations, their uses and abuses—railway, labor, industrial and commercial." A great deal of work has been done by the officers of the federation in inducing representation from the various States. Governors of more than a majority of the States have appointed men of prominence as statesmen, lawyers, business men, labor leaders, educators, farmers, &c., to represent their several commonwealths at this conference, while a number of the Governors will be present in person, as well as attorneys-general, labor commissioners, members of the United States Industrial Commission, the Interstate Commerce Commission, Congressmen, United States Senators and other men of prominence in national and State affairs, with some men of eminence from abroad. It is the intention of those who are arranging for this conference that the proceedings shall be strictly of an educational character, without partisan bias or color. The conference will undoubtedly be

a most important gathering, considering its personnel, and its deliberations and conclusions will be accorded respect.

The National Tube Company.

The National Tube Company have established their general offices in the Conestoga Building, Pittsburgh, Pa., with organization as follows: President, Edmund C. Converse;* chairman of the board, Joshua Rhodes;† first vice-president, F. J. Hearne;‡ second vice president, Horace Crosby;§ third vice-president Francis L. Potts;* general manager, A. S. Matheson;† treasurer, A. F. Luke;‡ assistant treasurer, William H. Latshaw;§ general counsel, Sullivan & Cromwell.*

Directors: Joshua Rhodes, J. J. Vandergrift, Charles H. Coster, Wm. B. Rhodes, F. J. Hearne, J. N. Vance, John Eaton, Francis Potts, F. R. Tobey, Jonathan Rowland, Daniel O'Day, O. C. Barber, Henry Aird, John Don, Edmund C. Converse, Wm. Nelson Cromwell, Wm. S. Eaton, A. F. Luke, Wm. J. Curtis, Horace Crosby, A. S. Matheson, Wm. P. Hamilton and A. H. Gillard.

Horace Crosby, second vice president, who has charge of the mercantile affairs of the company, makes the following announcement of sales officials and plan of handling orders: Edward Worcester, general sales agent, Conestoga Building, Pittsburgh, Pa.; Geo. S. Garritt, assistant general sales agent, Conestoga Building, Pittsburgh, Pa.

The United States have been districted as follows: *New York Territory*.—Headquarters, Havemeyer Building, New York, N. Y.; sales agent, Clifton Wharton, Jr. *Territory*.—All of New England, New York, New Jersey, California, Nevada and that part of Pennsylvania east of an imaginary line drawn through Pennsylvania directly west of Altoona but excluding the city of Philadelphia.

Note.—Boston and New York territory have been consolidated, but a Boston office will be maintained at 70 Federal street, in charge of P. W. French and C. F. Velasco, sales agents.

Philadelphia Territory.—Headquarters, 267 South Fourth street, Philadelphia, Pa.; sales agent, H. Cheston Vansant. *Territory*.—The city of Philadelphia, Delaware, Maryland east of Cumberland but not including Cumberland, Virginia, North and South Carolina, Georgia, Florida and Alabama.

Pittsburgh Territory.—Headquarters, Fidelity Building, Pittsburgh, Pa.; sales agent, A. M. Lally. *Territory*.—Pennsylvania west of Altoona but not including Altoona, Maryland, Cumberland and west thereof, West Virginia, Ohio, Kentucky, Indiana and Michigan.

Chicago Territory.—Headquarters, Clinton and Fulton streets, Chicago, Ill.; sales agent, H. S. Raymond. *Territory*.—Illinois north of parallel 40, Wisconsin, Minnesota, Iowa, Nebraska, North and South Dakota, Montana, Wyoming, Colorado, Utah, Idaho, Oregon and Washington.

Foreign.—Headquarters, Havemeyer Building, New York, N. Y. *Territory*.—All export business.

We noted the fact in these columns some time since that the Riter-Conley Mfg. Company of Pittsburgh had secured the contract for the building of four blast furnaces for the Dominion Iron & Steel Company, organized by the Henry M. Whitney syndicate at Sydney, Cape Breton, Canada. We can now state that this concern have also been awarded the contract for a complete modern steel plant for the Dominion Iron & Steel Company. It will include the building of a 38-inch blooming mill, the contract for which has been placed with Mackintosh, Hemphill & Co. of Pittsburgh; also ten 50-ton open hearth furnace electric traveling cranes and all other necessary equipment. The contract is one of the largest placed for a long time and with the blast furnace will aggregate close to \$5,000,000. The Riter-Conley Mfg. Company have the contract for the building of the entire plant, including everything above the ground. The large structural department of this concern on Preble avenue, Allegheny, which was destroyed by fire on July 13, has been nearly rebuilt. The new buildings are under roof and a month will see the work completed. During the time building has been going on the workmen have been working under temporary sheds.

Thomas Carlin's Sons Company, Pittsburgh, have been granted a charter. The directors are John H. Carlin, W. J. Carlin, P. J. Brennan, J. G. Richards and W. C. Scott. The new corporation will take over the business of Thomas Carlin's Sons, operating foundry and machine and boiler works in Allegheny, Pa.

* Havemeyer Building, New York City. † Conestoga Building, Pittsburgh, Pa.

OBITUARY.

CHARLES LUKENS BAILEY.

At Harrisburg, on the 5th inst., occurred the death of Hon. Charles Lukens Bailey, one of the most prominent iron manufacturers in that section of the State. Mr. Bailey had been sick for some time, but was only critically ill since Sunday. Charles Lukens Bailey was the son of Joseph Bailey and Martha (Lukens) Bailey. He was born in Chester County, March 9, 1821. His ancestors were of English and Welsh descent. Edward Bailey, the deceased's great-grandfather, was a resident of Bucks County, while his grandfather, William Bailey, was a farmer residing in the county of Philadelphia. Mr. Bailey's father was born in 1796. He took up his residence in Chester County and followed the occupation of farming until 1838, when he entered the iron business in Coatesville at the old Lukens mill. He there manufactured boiler plate for the period of six years. In 1844 William Bailey erected on the site of the "Old Forge" of the Pine Iron Works, at Pottstown, a rolling mill, and carried on business for himself for a few years. Later the mill was run under the name of Joseph Bailey & Sons. When he retired to private life he left the management of the works in the hands of his son, Joseph L. Bailey. Eight children were born to Joseph and Martha Bailey. They were Charles L., Sara, Edward, formerly manager of the iron works at Glasgow, Montgomery County, deceased; Dr. George of Philadelphia, William L., treasurer and manager of Thorndale Iron Works; Joseph L., Hannah, and Anne, deceased. Charles L. Bailey, the eldest son and deceased, was educated at the Westtown School, Chester County, after which he was clerk in the drug store of Thomas Evans & Co. of Philadelphia. In 1838 he began his career in the iron business, entering as clerk to his father at the Coatesville Works and becoming thoroughly familiar with all the details of iron manufacturing. When his parents removed to Berks County he went with them and continued as his father's clerk for a period of five years. From 1849 to 1852 he was a partner with his father in the Pine Iron Works. In August, 1852, Mr. Bailey went to Harrisburg, and with Morris Patterson of Philadelphia founded the old Central Iron Works, which was later used as a puddling mill. He continued in this business for seven years, when he became interested with the late James McCormick in the nail works at Fairview, Cumberland County. Mr. Bailey had the works rebuilt, and carried on a successful business until 1866, when he retired from the firm and erected the present Chesapeak Nail Works in Harrisburg. Some years later he was associated with his brother, Dr. George Bailey, under the name of Charles L. Bailey & Bro. Mr. Bailey removed to Pottstown in 1875 and for six years was treasurer and general manager of the Pottstown Iron Company, manufacturing nails, boiler plate and pig iron. He closed out his interest with this company, and in 1877-78 erected in Harrisburg the present Central Iron Works, contiguous to the Chesapeak Nail Works. Mr. Bailey was thoroughly possessed with a spirit of progress and enterprise. His various industrial undertakings attest to this fact. Although his mind was at all times upon his business, he never neglected his duties as a citizen. Mr. Bailey was president of the Board of Trustees of the Market Square Presbyterian Church, and was appointed in 1880 by Governor Hoyt a trustee of the Pennsylvania Insane Asylum. In 1877 he was a member of the Select Council of Harrisburg, and in 1879 was a member of the State Legislature. He was again a member of the Select Council in 1881, at which time he was elected president of that body and served as chairman of the Finance Committee. Mr. Bailey was united in marriage in 1856 to Emma H. Doll, daughter of William Doll and Sara M. (Elder) of Harrisburg. The following children survive: William Elder, a graduate of Yale in the class of 1882; Edward, a graduate in the Yale scientific course in 1881, president of the Harrisburg National Bank; Charles L. and James B., also graduates of Yale, and Emma D., wife of Robert E. Speer of New York.

EVAN MORRIS.

Col. Evan Morris, for years one of the best known of the Welsh pioneers of the Mahoning Valley and prominent in coal and iron circles, died on September 2 at his home in Girard, Ohio. Colonel Morris came to this country in 1831. From 1839 to 1854 he was located at Pottstown, Pa., and since had resided in the Mahoning Valley. He engaged extensively in operating coal mines and iron industries.

F. C. WELLS.

Frederick C. Wells, manufacturer of steam pumps, at Clinton and Monroe streets, Chicago, died at Wheaton, Ill., on the 28th ult. Mr. Wells was born in Connecticut and had attained the age of 69 years. He removed to the West in 1849, taking a position as engineer under

Col. R. B. Mason in the construction of the Illinois and Michigan Canal. Subsequently he engaged in the wholesale shoe trade, in which he had a successful career, but for the past 30 years he has been manufacturing pumps. He was the eldest brother of Robert M. Wells of the Wells & Nellegar Company, wholesale hardware merchants, Chicago. Five children survive him.

PETER N. NELSON.

Peter N. Nelson, a well-known New York engineer, died at his home in New York City on August 29 from apoplexy, aged 77 years. He was born at Le Grange, Dutchess County, N. Y., and was apprenticed at the age of 15 at the Matteawan Machine Works, and later served under instruction at the West Point Foundry at Cold Spring. After being employed by several firms he took charge of the works of A. B. Wiltse, where he invented the endless chain and friction clutch for hoisting ice, now used by every ice company on the Hudson. Coming to New York City he entered the employ of the old Fulton Iron Works, of which he became foreman. Later he entered the employ of the North River Iron Works and shortly after became chief engineer of the United States Public Stores.

PATRICK HACKETT.

Patrick Hackett, a prominent business man of Ogdensburg, N. Y., died on the 25th ult., after a few days' illness. Mr. Hackett was born in Tipperary, Ireland, on December 14, 1832. Thirteen years later his parents came to Quebec, and later moved to Morrisburg, Ont., where they remained until 1847. In that year Mr. Hackett came to Ogdensburg and entered the employ of the late Sylvester Gilbert. Three years later he entered the employ of Cheney & Allen, hardware merchants and foundrymen, with which business he had since been identified. At the dissolution of Cheney & Allen, Mr. Hackett continued with their successors, E. B. Allen & Son. On the death of the senior partners Mr. Hackett became a member of the firm, the style becoming W. B. Allen & Co. Mr. Allen's death occurred in 1884, and Mr. Hackett has since been sole proprietor of the business. Mr. Hackett was very conspicuous in public affairs and church work.

PERSONAL.

Stephen Leightner, superintendent of the converting mill at the Homestead Steel Works, has resigned and has been succeeded by H. D. Williams, formerly of the Bessemer mill of the Bethlehem Steel Company, at Bethlehem, Pa.

A. T. Adams of Ellwood City, Pa., has been appointed superintendent of the Shelby Steel Tube Company's plant, at Greenville, Pa.

Clark W. Harrison sails from New York on the 12th inst., to locate in London as the export sales manager of the United States Cast Iron Pipe & Foundry Company. He has hitherto been connected with the main office of the company in Chicago.

Chas. G. Eckstein of Berlin, Germany, who is introducing and selling American specialties in the pneumatic tool line abroad, will be in this country during the month of September. Manufacturers of air tools, &c., wishing to communicate with said gentleman should address their correspondence to Chas. G. Eckstein, 249 Centre street, New York City.

Job Hartley, formerly assistant superintendent of the Carrie blast furnaces of the Carnegie Steel Company, Limited, Rankin, Pa., has resigned to accept the position of general manager of the furnaces of the Lorain Steel Company, Lorain, Ohio.

George H. Lowe, formerly superintendent on one of the plants of the Southern Car & Foundry Company of Alabama, has been appointed superintendent of the Valley Works of the Republic Iron & Steel Company, Youngstown, Ohio.

The Eureka Fuel Company of Pittsburgh have been granted a charter of incorporation with a capital of \$1,000,000. The new concern have purchased a large coal acreage in the Connellsville region, and will erect Beehive coke ovens.

The Pressed Steel Car Company of Pittsburgh have taken an order from the Pennsylvania lines west of Pittsburgh, for the construction of 1000 steel cars, each having a capacity of 100,000 pounds, with self clearing hopper pipe. This is the fourth order given by the Pennsylvania lines to the Pressed Steel Car Company for 1000 cars each. An order was also received from the Great Northern Railway for 400 cars of the same pattern. The total value of the two orders is said to aggregate \$1,600,000.

Naval Expenditure.

WASHINGTON, D. C., September 5, 1899.—All the Bureau chiefs of the Navy Department, with the exception of Admiral O'Neil, have submitted to Secretary Long their estimates for naval expenditures for the fiscal year beginning July 1, 1900, for which appropriations will be made at the coming session of Congress. Leaving out of consideration the emergency appropriation of \$50,000,000 for war purposes made by the last Congress, it is probable that the amount asked for by the Secretary's annual report, to be submitted next December, will exceed that of any estimate ever presented. This does not necessarily mean that the Department is projecting a large number of additional vessels, but simply that in following up the policy formulated several years ago, in addition to meeting the special requirements developed by the recent war, very heavy expenditures are now necessary.

While the matter is one that will be determined by Secretary Long after further deliberation, it is now the general impression that the actual addition to the navy in the way of new ships to be recommended at the coming session will not exceed three 6000 tons protected cruisers, with an aggregate cost of about \$4,000,000. These ships were embraced in the very comprehensive recommendations made to Congress last year, but were not provided for.

The total item under the head of Increase in the Navy, according to the figures now before the Secretary, will amount to close on \$20,000,000, which is an increase of nearly 50 per cent. over any appropriation for this purpose ever made. The money will be required not for new ships, but chiefly as partial payments on the vessels now in course of construction, which aggregate 54, including, according to a table prepared by Admiral Hichborn, 11 battle ships, 4 monitors, 3 armored cruisers, 6 protected cruisers, 33 torpedo boat destroyers and torpedo boats, and a number of miscellaneous craft, including one submarine boat. Whether this item will be reduced before being submitted by the Secretary cannot be stated, but there is a strong disposition in the Department to push the work on all vessels heretofore authorized to advance their construction as much as possible during the coming fiscal year. It has been the experience of the Department both in public and private shipyards that the more rapidly a vessel is built the less its final cost.

The second largest item in the naval estimates will be that covering armor, and in this connection the Department finds itself no nearer a solution of the problem that has puzzled it for the past two years. As heretofore reported, the armor manufacturers have all declined to consider the price fixed by Congress as the maximum that can be paid, and the Department, therefore, has only been able to order certain light armor and bulkhead plates under the \$400 provision enacted with reference to vessels authorized prior to 1898. It is stated at the Department that Admiral O'Neil has gathered some very interesting additional data on the subject of the cost of the production of armor, and the prices now being paid by foreign governments for plates manufactured under the so-called Krupp process. It is probable that Secretary Long will transmit this information to Congress without comment, and that he will insist that the armor for all battle ships and the heavy plates on protected cruisers should be the best obtainable in any country. No intimation has been received here as to the probable attitude of the naval committees in the two Houses on the armor question. It seems likely, however, that the House will be found to take a reasonable view of the matter, and that even in the Senate, where all the trouble has been encountered heretofore, the extremists will be less in evidence than during past sessions.

The Bureau of Steam Engineering will also present an unusually large estimate for the next appropriation bill. The engineering plants at Mare Island, Norfolk, Port Royal, Port Orchard, &c., are to be greatly enlarged and improved if Congress will grant the money. The importance of bringing them up to date in equipment and general efficiency has induced Admiral Melville to suggest to the Secretary the complete remodeling of both buildings and their contents. This work will necessarily be spread over several years, but a very large initial appropriation is necessary to make a good start.

The chief item in the estimate of the Bureau of Yards and Docks will be for two additional dry docks on the Atlantic seaboard at New York and Norfolk, to be constructed of granite and concrete, and to be capable of accommodating the largest war ship. These docks will cost at least \$1,250,000 each. Other navy yard buildings under the jurisdiction of this Bureau, and which require reconstruction or extensive repairs, will

call for an additional appropriation of several hundred thousand dollars.

Secretary Long will take up the estimates already submitted at an early date, and will devote much time during the next 60 days to harmonizing the ideas of the various bureaus, reducing the estimates wherever possible, but he does not hesitate to predict that the Naval Appropriation bill will foot up a very important total.

W. L. C.

Trade Publications.

Machine Tools.—The U. Baird Machinery Company of Pittsburgh have issued a large, handsomely printed and tastefully arranged catalogue of the various machine tools made and handled by them. The catalogue is printed in English, German, French and Spanish. It considers first the several patterns of engine lathes of large size intended for heavy and accurate work. Their metal planers have many new features and are built of the best material. The bed is extremely deep and thoroughly braced at short intervals with box girder ties, and the tracks are wide and self oiling. The gearing is powerful and unique, which accounts for the smoothness of the running and freedom from jar or chatter. The shafts and length of bearings are at least one-third larger than usual practice. The boxings or bushings are fitted into bored holes in the bed. The belts can be shifted from either side of the planer by a cam motion, and can be located on the two loose pulleys by a device situated conveniently for the operator, thus avoiding danger of accident by reason of belts working on two tight pulleys and starting the table. The table is deep and heavy and accurately scraped to bearing surface in the bed. The rack is carried out at each end, so that work longer than the stated capacity can be planed. The racks are made in short sections, are cut from solid stock and are interchangeable. The table can be run back clear of the cutting head. The cross rail has great depth of face and is scraped to a bearing on the housing. Rails having two heads are provided, with a power attachment for raising them. The heads have a large bearing surface, carefully fitted. The tool slide has one-third longer travel than ordinary practice, and has full bearing on swivel, however low down it may run. The feed is simple and independent in all directions, and can be used at either end of the stroke. Their punching and shearing machinery is made of any description desired and for any purpose. Their boring and turning mills of the vertical type are made in several sizes, and have features peculiar to themselves. Their 5-foot mill has a table 57 inches in diameter, has 20 changes of speed, and is driven by a cone of large diameter with a wide belt and powerful gearing. Descriptions follow of their upright drills, milling machines, cylinder boring machines and cranes. The latter include locomotive, jib and portable cranes and hoists. This is followed by compressors driven by belt and steam, pneumatic riveters, sprue cutters, magnetic chucks, dynamos, hoists, &c. Tool, knife and other grinders conclude the catalogue, which is provided with a copious index in each of the four languages.

Condensing Apparatus.—Henry R. Worthington of New York has issued a pamphlet intended to show to those interested the scope and magnitude of the work recently accomplished in the direction of designing and building high class condensing apparatus. Since the advent of cooling towers it is possible, and in fact highly desirable, to give every steam engine the benefit of a vacuum, whether the water supply is fresh, salt or entirely lacking. It is well to use a jet condenser where the water supply for condensation is fresh and of sufficiently good quality for boiler feed; a surface condenser where a supply for condensation is unfit for boiler feed and distilled water from the condenser is necessary for that purpose; and a self cooling condenser where the entire water supply is limited to boiler feed, there being no sufficient water supply of any kind for condensing purposes. The entire practicability of these several methods is plainly shown in the pamphlet. Illustrations are presented of several of the installations made by the manufacturer, the subject being covered most completely.

Power Pumps.—A circular has been received from C. O. Lucas & Co. of Greenville, Ohio, descriptive of their power pumps for boiler feeding, filling tanks, pumping molasses, &c. These pumps are simple, strong and serviceable.

Screw and Hydraulic Presses.—A. Adamson of Akron, Ohio, has issued a pamphlet descriptive of screw and hydraulic presses intended for a wide line of work.

Their tire repair press is especially designed for rubber works having many tires to repair. The table is 30 inches long and capable of curing 13 tires at one time. The cross bar is provided with stops, so as to allow of raising the lever when curing valve stems.

Rope Making.—A catalogue of the Waterbury Rope Company of New York contains much interesting matter concerning the various methods which man has adopted for the making of fiber rope. It also discusses the qualities of the various well-known fibers, and then deals extensively with the various operations practiced at their own works in the making of rope. They also show a price-list of wire rope and wire rope fittings.

Machine Tools.—James T. Mackay, St. Louis, Mo., has issued a catalogue of the wide range of machine tools of all kinds handled by him. The list includes lathes, planers, drills, tapping machines, milling machines, milling cutters, presses, shears, punches, crimping machines, grinding machines and a large range of small tools.

Manufacturers' and Machinists' Hardware.—Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, have issued catalogue D, containing numerous additions to and corrections of their previous catalogue. All lists have been revised to agree with the present market, manufacturers' lists being used exclusively. The catalogue is a remarkable specimen of compactness. Lengthy descriptions are avoided as far as possible and fine type and small cuts are used, yet the work comprises 300 pages, covering all kinds of manufacturers' and mill supplies and machinists' tools and supplies. A discount sheet for ordinary quantities accompanies the catalogue.

Standard List and Diagrams of Shapes.—Jones & Laughlins, Limited, Chicago, have issued a very convenient pocket volume for the use of engineers, builders, contractors and the trade generally. Its contents comprise 177 pages, handsomely printed and substantially bound in flexible cloth. It contains the standard steel lists, diagrams of shapes, calculations of safe loads and much other useful information.

Another trunk line into Pittsburgh was opened for business this week. On Monday, September 4, the first train was run over the new extension of the Buffalo, Rochester & Pittsburgh Railway, between Pittsburgh and Reynoldsville. Local passenger service between the two points named has been inaugurated, and trains will be run daily, except Sunday. The new line will be a competitor of the Allegheny Valley Railway, and will give that company opposition for traffic to points along the Red Bank division, Buffalo, Rochester, Reynoldsville and many other places. The new line reaches Pittsburgh over the Pittsburgh, Bessemer & Lake Erie Railroad and the Pittsburgh & Western Railroad, and the terminus is at the Pittsburgh & Western depot, in Allegheny, Pa. The new road will run through solid vestibule trains, with free reclining chair cars, between Pittsburgh, Buffalo and Rochester.

The Sterling White Lead Company of Pittsburgh, with works at New Kensington, Pa., have increased their capital stock from \$200,000 to \$300,000, and will at once commence the erection of a large addition to their corroding house. The new corroding house will be a duplicate of the present one, which is 78 feet wide and 450 feet long and contains 34 corroding beds, with a capacity of 60 tons of pig lead each every 100 days. The corroding department will be equipped with electric traveling tranes, each with a capacity of 3 tons, which will facilitate the work of charging and discharging beds. Most of this work is now done by hand.

A Birmingham, Ala., dispatch states that there has been a sale of 8000 tons of steel billets at \$35 cash, at mill, delivery 1000 tons each month, commencing January.

The North German Lloyd liner "Kaiser Wilhelm der Grosse," which arrived in New York Harbor on Tuesday morning, has again broken the westward transatlantic record, making the passage from Cherbourg breakwater to Sandy Hook Lightship in 5 days, 18 hours and 5 minutes. The best previous record, also held by the "Kaiser Wilhelm," was made last year, when the steamship made the passage in 5 days and 20 hours from Southampton, which is almost exactly the same distance as Cherbourg from New York. Her average rate of speed on the present voyage was 22.08 knots an hour, and the longest distance covered in one day was 556 knots.

MANUFACTURING.

Iron and Steel.

The Illinois Steel Company have closed a contract with the Carnegie Steel Company for 6000 tons of ferromanganese for delivery during the next 12 months at full prices.

The Excelsior Foundry Company, Belleville, Ill., who have lately added a jobbing malleable iron department, are much encouraged by the trade entered upon. They are making prompt shipments of gray and also malleable iron castings and are in shape to handle additional business.

The Muirkirk Furnace, at Muirkirk, Md., will not go in blast until October, owing to difficulty in getting fire bricks and ore.

The Continental Iron Company, with main offices at Niles, Ohio, and works at Niles and Wheatland, Pa., and manufacturers of pipe casing, tube iron and muck bar, have secured a lease on the rolling mill of the Stewart Iron Company, Limited, at Sharon, Pa., and expect to have it in operation about the 20th inst.

The Buena Vista Furnace, at Buena Vista, Va., was blown in on August 29.

The Bessie Furnace, at Columbus, Ohio, was blown in on the 2d inst.

What is considered a record in rolling merchant bar was recently made upon the combination mill at Mingo Junction, Ohio, designed and built by Morgan Construction Company of Worcester, Mass. The output in eight hours was 261,045 pounds; 12 hours, 388,120 pounds; 24 hours, 725,665 pounds; week's output, 3,623,915 pounds.

The Aetna-Standard Iron & Steel Company, who are controlled by the National Steel Company, have put their new converting mill at Mingo Junction, Ohio, in operation. There are two 10-ton vessels. The converters in the old mill have been abandoned, but, pending the completion of the rolling department in the new plant, the old billet mill is being run on ingots furnished by the new converters. The finishing mills, not yet completed, will include a continuous sheet bar mill, a continuous billet mill for rolling 4 x 4 and smaller squares, and two continuous mills for rolling bars, shapes, &c. It will be some time before these mills are ready for operation.

The employees of the Benwood works of the Wheeling Steel & Iron Company, at Benwood, W. Va., have accepted the proposition of the firm for a 5 per cent. increase in wages, instead of 10 per cent., which they originally demanded.

The Cambria Steel Company, Johnstown, Pa., have declared a dividend of \$1 a share, payable October 6.

The West Penn Foundry & Machine Company of Avonmore, Pa., have received an order from the La Belle Iron Works, Wheeling, W. Va., for a 24-inch 3-high bar mill, to be erected at Steubenville, Ohio.

The Calcasieu Iron Works, McKinnon & McFarlane, proprietors, are building a machine shop, foundry and boiler shop at Lake Charles, La.

The Gilbert Hunt Company, Walla Walla, Wash., will build a foundry, 40 x 120 feet, to manufacture their own castings for threshing machines.

The seamless tube mill of the Albany Mfg. Company at Portland, Ind., was burned on the 25th ult., with a loss stated at \$40,000.

The blast furnace formerly operated by the Lone Star Iron Company at Jefferson, Texas, has been disposed of at judicial sale to a syndicate of which W. T. Atkins is secretary and treasurer, and work has already begun to prepare it for operation. The Star and Crescent Furnace at Rusk, Texas, is also in the hands of new parties, who will soon blow it in.

The Illinois Iron & Bolt Company, Carpentersville, Ill., are building an addition to their foundry. It will be of brick with a steel truss roof and will cover a space 75 x 132 feet.

Dunbar Furnace Company, Dunbar, Pa., have posted notices informing their employees that their wages have been advanced 5 cents per day, taking effect September 1. This makes a total of 45 cents per day this concern have voluntarily granted their employees during the past eight months.

In August the Bessemer converting mills of the Youngstown works of the National Steel Company, Youngstown, Ohio, made 4385 heats and 44,897 tons of ingots. The blooming mill made 39,656 tons, consisting of 12,255 tons of large billets and 27,401 tons of small billets and tin bars.

Machinery.

The Mesta Machine Company of Pittsburgh have received an order from the Lukens Iron & Steel Company of Coatesville, Pa., for a No. 5 bar shear. The shear will be used for cutting heavy scrap and weighs 100,000 pounds, and will be driven by an electric motor. The same concern have received an order from the Morris & Bailey Cold Roll Machine Company of Pittsburgh for a Mesta patent pickling machine of the four-arm type and specially adapted for cold rolled steel in large coils.

One of the largest orders ever received by the Bullock Electric Mfg. Company is that just secured for electrical apparatus from a French concern for railway generators, the order amounting to \$500,000. The generators will be shipped to France,

China and South Africa, the entire contract to be completed within two years. Another order for \$20,000 worth of generators has also been recently secured for San Francisco, Cal., parties.

The Cincinnati Planer Company have sold for delivery at Milan, Italy, three planers, two 36-inch and one 24-inch.

Hardware.

The new plant of the Baker Chain & Wagon Iron Mfg. Company, to be erected at Rankin, Pa., will be considerably larger than the present works in Allegheny. One important change to be made in the equipment is the substitution of gas for steam engines, as the motive power will be supplied entirely by gas engines.

The E. A. Henry Wire Company, Cuyahoga Falls, Ohio, are manufacturing wire and wire nails, of which they are in a position to turn out about 25 tons per day. They have put in modern machinery and are prepared to take orders for annealed fence wire, bright market wire and soft baling wire, making a specialty of bright market wire and soft Bessemer wire for rivets, &c. They will also turn out wire nails to a limited extent.

The Kansas City Roofing & Corrugating Company, Kansas City, Mo., are now moving into their new building, located on Suburban Belt Railroad, at Nos. 218 and 220 West Third street, lot 54 x 120 feet, building 42 x 100, with track facilities, two stories and basement, giving them three times their former capacity, and everything arranged expressly with the view to facilitating handling of their particular line of goods. The basement will contain the tarred felt, ruberoid and other prepared roofings, also roofing pitch, coal tar, roof coating, and other goods of this class. The second floor will contain their stock of corrugated iron in all the different shapes and all kinds of steel and iron roofing and other heavy goods. On this floor they will carry eave trough and conductor pipe, ridge roll, building paper and other goods of this class. They will have a capacity for 1,000,000 pounds of pitch, felt, &c., in the basement; 100,000 sheets of corrugated iron, &c., on the first floor, and about 10 carloads of light material on the second floor. The building is roofed with their well-known ruberoid roofing; sided with their steel rock faced stone, with handsome cornice and trimmings. The office is lined with their special steel wall lining, and celled with handsome stamped steel ceiling. The company have for the past year or so been cramped for room and found it impossible to carry a stock sufficient to meet the increased demand for corrugated iron, &c., but they will now have capacity for carrying a large stock of corrugated iron and goods of this class and will be prepared to fill orders with promptness and at the lowest market prices.

Geo. H. Bishop & Co., Lawrenceburg, Ind., advise us that the urgent and increasing demand for their line of saws, tools, trowels, corn and cane knives necessitates the erection of an addition to their present plant. They have now under way a brick structure 100 x 45 feet, which will be ready for occupancy within the next 45 days. This will insure a notable increase in the company's productive capacity.

Miscellaneous.

The special meeting of the Manufacturers' Natural Gas Company of Pittsburgh to consider an increase in the capital stock and the purchase of the People's Light & Power Company of Washington, Pa., was adjourned until November 3, when definite action will be taken in both matters.

The Pittsburgh plumbers have adopted a scale of \$3 a day for men of less than seven years' experience and \$3.50 for older men.

The new plant of the Alcania Tin Plate Company, at Avonmore, Pa., will be started up this week. The plant contains two hot mills, a sheet bar mill, three cold mills and a tinning department, and is expected to turn out about 8000 boxes of plates a month. It is intended to add four mills to the plant before long. W. H. R. Hilliard is president of the company; Oliver Wylie secretary and treasurer, and W. S. Collier, A. O. Fording and M. M. Garland directors.

The Sprocket Chain Mfg. Company of Detroit, Mich., dealers in refined malleable castings, announce the change of their firm name to Buhl Malleable Company of same place.

The Union Gas Engine Company, San Francisco, Cal., are having erected for their use a two-story brick building 50 x 100 feet, and a one-story frame building 100 x 100 feet, on Folsom street, between First and Second.

The Sundries Mfg. Company are making a success of the business which they established at South Bend, Ind., about the beginning of the present year. Their chief product is a feed grinder of new design which has proved to be a very popular article for farm use. The president is Marvin Campbell, who was connected with the Studebaker Bros. Mfg. Company for 11 years, having been manager of the sales department for seven years and at the head of the purchasing department for three years. The vice-president is John B. Campbell. The secretary is Oscar D. Carpenter, who was connected with the Oliver Chilled Plow Works for 20 years, during the most of which time he had charge of their St. Louis branch. The treasurer and superintendent is Wm. H. Barger. All the officers are practical men, fully conversant with the details of the manufacturing business, which accounts for the successful start made.

The trouble at the Washington works of the American Tin Plate Company, at Washington, Pa., has been settled. The girls, whose discharge for alleged incompetency was the cause of the trouble, have been reinstated on trial, and if the work of any or either of them is found to be not up to the standard they are to be finally discharged.

The Stanton Heater Company, Bellaire, Ohio, manufacturers of the Stanton seamless warm air furnace, advise us that they expect to be in their new building not later than October 15. They refer to the fact that their new buildings will be modern throughout and equipped with up to date machinery. The trade of this concern is increasing very rapidly.

The Westinghouse Machine Company of East Pittsburgh are working on a gas engine which is expected to develop about 1600 horse-power. It is the intention to drive this engine with blast furnace gas.

At a meeting of manufacturers of cold rolled shafting held last week prices were advanced to 27 per cent. off for carload lots and 20 per cent. off for less than carloads. The demand for shafting is very heavy, and all the concerns are considerably behind in deliveries.

The Riter-Conley Mfg. Company of Pittsburgh have received a contract for six oil tanks, with a capacity of 100,000 liters each, from the Dordsche Petroleum Maatschappij of Sumatra. The company have built a large number of tanks for the same company in the last few months. The Dutch company began purchasing tanks from the Riter-Conley Mfg. Company about 18 months ago. The present order is the largest ever sent at any one time. The Riter-Conley Mfg. Company have begun shipment for the immense contract they have for the Dominion Iron & Steel Company, at Sydney, Cape Breton. The company are building four large blast furnaces and a steel mill complete, and will require about 18 months for this construction. Plate and structural steel and castings and rigging are being sent up and a corps of expert erectors will be put to work at once. The Riter-Conley Company have also begun shipments for the great steel grain elevator they are erecting for the Great Northern Railroad at West Superior, Wis.

The Pittsburgh Coal Company, which is the name of the new organization which recently took over all the leading coal interests of Pittsburgh, have notified consumers of an advance in price from 85 cents to \$1.10 a ton. The small dealers say this will necessitate the raising of the price to consumers about 26 cents a ton.

The Wellman Seaver Engineering Company, Cleveland, Ohio, have closed a contract with F. B. Nichols to do the engineering and superintend the building of a pipe foundry to be located near Birmingham, Ala. This foundry will embody all the latest ideas in regard to successful foundry practice. The plant will start with a capacity of approximately 150 tons per day. It will be the most modern type fire proof construction throughout, with a complete electrical installation for driving all the cranes and the various machines. It is intended to spare no pains whatever to make the plant the most economical one, in regard to the cost of labor for production, that has been built.

Part of the new plant of the Pressed Steel Car Company of McKees Rocks, Pa., was put in operation on Monday, September 4. It will likely be a month or two before the entire plant is ready for operation, but as fast as possible additional departments will be started up.

The Woolley Foundry & Machine Works, Anderson, Ind., manufacturers of gas and gasoline engines, have recently purchased the real estate and buildings of the Scofield Bolt Works, which adjoin their establishment on the north. This will permit them to more than double their capacity. After the new real estate now owned by the company, which embraces nearly six acres and contains large and airy shops, is occupied by the machinery that is now installed and being installed, it will be one of the largest gas engine manufacturing plants in the United States. The company have increased their capital stock from \$30,000 to \$75,000.

The Autocar Company of Pittsburgh have made application for a charter of incorporation. The incorporators are C. L. Clarke, L. S. Clarke, William Morgan, J. D. Lyon and Fred K. Fitler, who will reorganize what has been known as the Pittsburgh Motor Vehicle Company, manufacturing vehicles in which gasoline is used as the motive power. A new plant is to be erected at Hawkins, on the Pennsylvania Railroad, a few miles from Pittsburgh.

The Union Metallic Cartridge Company, at Bridgeport, Conn., have placed an order with the Berlin Iron Bridge Company of East Berlin, Conn., for an extension of their three-story factory building on Barnum avenue, and connecting same with a bridge across Barnum avenue to a factory building on the opposite side of the street.

The works of the Aschman Steel Casting Company and the Graff Stove Company, at Sharon, Pa., have been sold to the American Malleable Casting Company of Cleveland, Ohio, who have already taken possession of both plants. The new company will make improvements and double the capacity of the plant. The plant of the Graff Stove Company, at Sharon, has been idle for a long time, that concern having built new works at Monongahela City, Pa., which they have been operating for a long time.

The Iron and Metal Trades.

A Comparison of Prices

At date, one week, one month and one year previous

Advances Over the Previous Month in Heavy Type.
Declines in Italics.

	Sept. 6, 1899.	Aug. 31, 1899.	Aug. 9, 1899.	Sept. 7, 1898.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia.....	\$22.25	\$21.25	\$20.50	\$10.75
Foundry Pig, No. 2, Southern, Cincinnati.....	19.25	18.75	18.25	9.50
Foundry Pig, No. 2, Local, Chicago.....	21.00	20.50	20.00	11.00
Bessemer Pig, Pittsburgh.....	23.75	22.50	21.25	10.50
Gray Forge, Pittsburgh.....	19.25	19.00	17.75	9.35
Lake Superior Charcoal, Chicago.....	23.50	23.00	22.00	11.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh.....	38.00	37.00	34.50	16.00
Steel Billets, Philadelphia.....	40.00	39.00	36.00	18.00
Steel Billets, Chicago.....			36.50	17.50
Wire Rods, Pittsburgh.....		44.00	44.00	22.00
Steel Rails Heavy, Eastern Mill.....		32.00	30.00	18.00
Spikes, Tidewater.....		2.35	2.15	1.40
Splice Bars, Tidewater.....		2.05	1.95	1.05
OLD MATERIAL:				
O. Steel Rails, Chicago.....	1.00	16.00	15.00	7.75
O. Steel Rails, Philadelphia.....	18.50	18.50	17.00	10.50
O. Iron Rails, Chicago.....	23.00	22.50	20.00	12.50
O. Iron Rails, Philadelphia.....	21.50	21.50	21.00	12.50
O. Car Wheels, Chicago.....	16.50	16.00	15.50	11.00
O. Car Wheels, Philadelphia.....	18.00	17.75	17.00	10.50
Heavy Steel Scrap, Chicago.....	15.50	14.50	14.00	7.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia.....	2.00	2.00	2.00	1.15
Common Iron Bars, Youngstown.....	1.95	1.87½	1.85	1.00
Steel Bars, Tidewater.....		2.30	2.20	1.15
Steel Bars, Pittsburgh.....	2.50	2.25	2.10	1.00
Tank Plates, Tidewater.....		2.80	2.70	1.25
Tank Plates, Pittsburgh.....	2.75	2.65	2.50	1.15
Beams, Tidewater.....		2.40	2.15	1.40
Beams, Pittsburgh.....	2.25	2.25	2.00	1.20
Angles, Tidewater.....		2.40	2.15	1.20
Angles, Pittsburgh.....	2.50	2.25	2.00	1.10
Skelp, Grooved Iron, Pittsburgh.....	2.25	2.25	2.25	1.10
Skelp, Sheared Iron, Pittsburgh.....	2.60	2.60	2.60	1.20
Sheets, No. 27, Chicago.....	3.40	3.25	3.18	2.10
Sheets, No. 27, Pittsburgh.....	3.25	3.00	3.00	1.90
Barb Wire, f.o.b. Pittsburgh.....	3.25	3.10	3.10	1.65
Wire Nails, f.o.b. Pittsburgh.....	2.65	2.50	2.50	1.30
Cut Nails, Mill.....	2.40	2.20	2.20	1.05
METALS:				
Copper, New York.....	18.50	18.50	18.50	12.25
Spelter, St. Louis.....	5.25	5.40	5.75	4.62½
Lead, New York.....	4.60	4.60	4.50	4.02½
Lead, St. Louis.....	4.50	4.50	4.57½	3.87½
Tin, New York.....	32.00	30.65	32.25	16.10
Antimony, Hallett, New York.....	9.75	9.75	9.75	9.00
Nickel, New York.....	36.00	36.00	36.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.82½	4.82½	4.55	2.85

Chicago. (By Telegraph.)

Office of The Iron Age, 805 Fisher Building,
CHICAGO, September 6, 1899.

The general situation is worse, so far as the ability to care for customers is concerned. Manufacturers of Iron and Steel are constantly falling further behind on deliveries and great inconvenience is being felt everywhere. This extends to the simplest manufactured products, as, for instance, Washers, which are not only hard to get, but on which it is almost impossible to secure a price. Many large undertakings are being postponed on account of high prices, but the rush of general business is so great that no impression is being made by such conditions. The outlook is more buoyant than ever. Prices of many products have advanced and the tendency is still upward.

Pig Iron.—Business continues active, sales keeping up to the high level of preceding weeks. Numerous contracts are being placed for next year's delivery, some of them extending into the last half. The demand covers all kinds of Iron from all classes of consumers. Inquiries are large from Malleable foundries, while further sales have been made of Southern Basic. Enough consumers are in urgent need of Iron for early delivery to keep up the appearance of great scarcity. They assert that they have plenty of Iron due them on contracts, but deliveries are not being made. A sale of several hundred tons of Low Phosphorus Pig has been made at \$33.50, at Mahoning Valley furnace. Quotations have advanced from 50c. to \$1 all along the line. We quote for cash as follows:

Lake Superior Charcoal.....	\$23.50 to \$24.50
Local Coke Foundry, No. 1.....	21.50 to 22.00
Local Coke Foundry, No. 2.....	21.00 to 21.50
Local Coke Foundry, No. 3.....	20.50 to 21.00
Local Scotch, No. 1.....	22.00 to 22.50
Ohio Strong Softeners, No. 1.....	23.50 to 24.00
Southern Silvery, according to Silicon.....	24.50 to 25.50
Southern Coke, No. 1.....	21.40 to 21.90
Southern Coke, No. 2.....	20.40 to 20.90
Southern Coke, No. 3.....	19.65 to 20.15
Southern Coke, No. 1 Soft.....	21.40 to 21.90
Southern Coke, No. 2 Soft.....	20.40 to 20.90

Foundry Forge.....	18.90 to 19.15
Gray Forge and Mottled.....	18.90 to 19.15
Southern Charcoal Softeners.....	21.65 to 24.65
Alabama and Georgia Car Wheel.....	23.00 to 23.50
Malleable Bessemer.....	23.00 to 23.50
Standard Bessemer.....	23.50 to 24.00
Jackson County and Kentucky Silvery.....	
8 per cent. Silicon.....	28.80 to 30.00

Bars.—The week has been decidedly active, notwithstanding the higher prices now prevailing. The largest Bar Iron manufacturers, being sold up for this year, have taken considerable business for delivery running into the early months of next year. Outside Bar mills able to make delivery during the last quarter of this year are getting prices showing quite an advance on those current last week. Contracts have been taken for such deliveries at 2.20c., Chicago, but it is asserted that 2.50c. will be asked on Common Iron hereafter. The quotations on mill shipments of Common Iron of 2.15c. to 2.25c., Chicago, seem now to be only available for next year's business. Prices on Soft Steel Bars are also advancing with a continuous influx of orders. Quotations on mill shipments range from 2.25c. to 2.45c., Chicago, but it is now difficult to secure the inside quotations. Hoops are held at 2.50c., base, Chicago, for Bands. Jobbers continue to report a heavy trade, which is somewhat restricted through inability to keep up full stocks. Small lots from stock are quoted at 2.65c. for Bar Iron and 2.50c. to 2.90c. for Soft Steel Bars, and 3.50c. to 3.60c. for Norway and Swedish Iron.

Car Material.—Car builders are buying at top prices, showing that they are getting new car orders at such rates as will justify them in paying higher prices for what they need. Orders during the last week are known to have covered 1500 cars and probably more business was done that has not become public.

Structural Material.—The contracts placed here since last report aggregated about 3000 tons, principally for bridges. The high prices have not in any way affected the disposition of consumers to buy, although considerable talk is current of new enterprises being postponed. Quotations last week were not correctly stated on account of errors in telegraphic transmission. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15-inch and under, and Angles, 3 to 6 inches, 2.40c.; Beams, &c., 18 inches and over, and Angles, over 6 inches and under 3 inches, 2.50c.; Tees, 2.45c.; Universal Plates, 3.15c. Store prices are now showing a somewhat greater variation from mill prices on account of shortage of stock.

Plates.—The outlook grows worse for consumers instead of better. The demand for Plates continues heavy and the little relief afforded some time since by mills starting up has disappeared. Mill shipments are now quoted as follows, Chicago, for reasonable deliveries: Tank, 2.85c. to 3c.; Flange, 3.05c. to 3.25c.; Marine, 3.20c. to 3.40c.; Fire Box, 4c. to 5½c. Jobbers are asking still higher prices from stock and now quote Tank in small lots at 3.15c. to 3.30c. and Flange 3.35c. to 3.50c.

Merchant Pipe.—Pressure on the mills for more prompt delivery is having no effect. They are still far in arrears on shipments and consequently stocks in local warehouses are extremely low. Standard sizes are about exhausted in manufacturers' warehouses. Jobbers are in a little better shape, but not much better. Mill shipments continue to be quoted at 50 and two 10's, but this price is only nominal in view of the backwardness of deliveries. Boiler Tubes are in about the same shape as Merchant Pipe, the mills being unable to promise early shipment. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1½ inches, inclusive, 40 per cent. off; 2 to 2¼ inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off.

Sheets.—A great deal of business is reported in Black Sheets, large consumers and jobbers having placed important contracts. Prices have hardened during the week, and while No. 27 might have been available at 3.15c., it is not believed now that any mills can be found quoting Sheets of good quality at less than 3.30c., Chicago. Galvanized Sheets are not quite as firm as Black Sheets, owing probably to the reduced cost of Spelter, but the usual mill quotation for Chicago delivery is 70 and 5 per cent. off. Jobbers quote small lots of No. 27 Black Sheets at 3.40c. to 3.50c., and Galvanized at 70 per cent. off.

Merchant Steel.—Business is now a little quiet. Sales agents are not pushing trade, as mills are crowded to their utmost capacity. Prices have been advanced. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.95c. to 3.05c.; Smooth Finished Tire, 2.80c. to 3c.; Open Hearth Spring Steel, 3.45c. to 3.70c., base; Toe Calk, 3.20c. to 3.50c., base; Sleigh Shoe, 2.60c. to 3c.; Cutter Shoes, 3.25c. to 3.50c.; Ordinary Tool Steel, 7c. to 7½c.; Special, 13c. and upward. Jobbers are quoting from store: Crucible Spring Steel, 6c. rates; Open Hearth Spring Steel, 5c.;

Smooth Machinery Steel, 5¢; Tie Steel, 3½¢; Toe Calk Steel, 4¢.

Billets and Rods.—The scarcity of Billets at Pittsburgh is shown by the fact that efforts are being made to purchase Open Hearth Billets for some of the smaller Western works which are supposed to have a purely local trade. The only transactions in Billets reported are sales of small lots of Open Hearth at \$46. Nothing is doing in Wire Rods, the output of the local works being sold for some time.

Rails and Track Supplies.—The local mills have no Rails of Standard Sections for sale for this year's delivery and prices have not yet been named for 1900, although inquiries are steadily being received. Eastern mills are selling small lots of Standard Sections for delivery here at \$32.50 upward, according to quantity. Good sales of Light Rails are reported at \$32 to \$37, according to section, small lots commanding 2¢ per lb. A lively business is being done in Track Supplies. A sale of several hundred kegs of ½-inch Track Bolts has been made at 5½¢, delivered here. Track Supplies are quoted as follows: Steel Fish Plates, 2¢; Iron Fish Plates, 2.50¢ to 3¢; Spikes, 2.65¢ to 2.70¢; Track Bolts, with Hexagon Nuts, 3.55¢ to 3.60¢; Square Nuts, 3.40¢ to 3.45¢; Steel Links and Pins, 3¢; Iron Links and Pins, 2.95¢.

Old Material.—A sharp demand is reported for Old Iron Rails, with apparently no supply available. An increasing demand is observed for all other kinds of material also, but difficulty is experienced in securing an adequate supply. Low Phosphorus Plate Scrap has been sold at \$28 per gross ton and holders now ask \$39. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$23; Old Steel Rails, mixed lengths, \$17; Old Steel Rails, long lengths, \$17.50; Relaying Rails, \$23 to \$25; Old Car Wheels, \$16.50 to \$17; Heavy Melting Steel Scrap, \$15.50 to \$16; Mixed Steel, \$12. The following selling prices are per net ton: No. 1 Railroad Wrought, \$17.50; Dealers' Forge, \$14; Fish Plates, \$18; No. 1 Mill, \$11.50 to \$12; Heavy Cast, \$13.50 to \$14; Stove Plate, \$10; Railroad Malleable Cast, \$11 to \$11.50; Agricultural Malleable Cast, \$10; Iron Car Axles, \$22; Horseshoes, \$13.50 to \$14; Cast Borings, \$7.50; Steel Axle Turnings, \$9.50 to \$10; Iron Axle Turnings, \$10 to \$10.50; Machine Shop Turnings, \$9 to \$9.25.

Metals.—Copper shows no change, carload lots of Lake being still quoted at 19¢ and Western at 17½¢. Spelter is lower, quoted at 5.62½¢. Pig Lead is quiet but steady at 4.55¢ to 4.60¢, with very little being offered by refiners.

Tin Plate.—The demand continues extremely active, especially for Roofing Plates, which are getting still scarcer. Jobbers are having even more difficulty in keeping up stocks, and some of the largest houses report that they could easily sell several boxes where they are now disposing of one if they had the Plates to draw upon. Jobbers have advanced their prices to correspond with the recent advances by manufacturers and have found the trade paying the higher rates quite cheerfully.

Philadelphia.

Office of The Iron Age, Forrest Building, }
PHILADELPHIA, PA., September 5, 1899. }

The market has maintained its advancing tendency all through the week, but toward the close it became very nervous and excited. Prices were put up in all directions, and are getting to a point at which they are hardly quotable, as pretty much every seller makes his own price, regardless of what others may do. Efforts to place orders for October and November deliveries were met with a demand for \$3 to \$5 advance on Billets, and about the same on Plates and Shapes, and even then the mills, after taking a few orders for the two last mentioned articles, had to stop, as they were soon filled to their extreme capacity. Buyers are here in person from almost every point of the compass, and take whatever they can lay their hands on for shipment, especially to the West and Northwest. Quantity appears to be no object, preferably 1000 to 2000 tons and upward, to 100 or 200 ton lots. One lot of over 1000 tons Merchant Bars was quickly taken from a nearby mill at full quoted rates, and several Plate orders were also placed for the same destination—viz., Chicago. Pig Iron is also being diverted to the West, and it looks as though the local trade would have to advance their bids if they intend to maintain their supplies. There is nothing speculative or fictitious in the situation. Material is wanted, but owing to extreme scarcity it can only be had by competitive bidding, and the one who bids highest and gets what he wants is likely enough to be

regarded as the lucky one the day following. This, of course, is a most unusual condition, and would ordinarily be regarded as poor judgment, but these are not ordinary times, and old time business judgment appears to be quite out of date. There will be an end to it some time, but it is not in sight yet, so that in the meantime the only alternative is to take things as they come, and trust to luck as regards the future.

Pig Iron.—The upward tendency of the market, which has been so continuously reported for many weeks past, is still in evidence, the usual advances having been made during the past week. Exact quotations are hardly possible under present conditions, but the range to-day for No. 2 X Foundry would be from \$22.25 to \$23, with the next lowest sales likely to be at not less than \$22.50, as holders are very firm, and find that everything goes, 25¢ or 50¢ per ton being no obstacle to business, providing that the order can be placed. Some lots of from 1000 to 5000 tons each have been taken, and as yet there are no signs of weakness in prices in any quarter. A good deal of Iron is being diverted to Western markets, so that the only alternative for local consumers is to pay prices in proportion, or lose their Iron. It may be of interest to note the fact that a lot of several thousand tons of foreign Iron has been bought for shipment to this port, but it is not likely to affect values here, although it may stiffen prices abroad, as they are very short of Iron themselves, more particularly of Finished Material, the scarcity of which has become almost as serious as with us on this side. Prospects in the American market are in all respects of the same favorable character as before, and so far as can be seen, the demand is likely to continue without abatement for a long time to come. Prices for seaboard or nearby deliveries are about as follows: No. 1 X Foundry, \$23.50 to \$24; No. 2 X Foundry, \$22.25 to \$23; No. 2 Plain, \$20.75 to \$21.25; Standard Mill Iron, \$19.50 to \$20; Basic, \$22.75 to \$23; Bessemer, 22.50 to \$23.50; Low Phosphorus, \$26 to \$27.

Billets.—Prices are nominally about \$40, but there is little or no Steel available until November or later, unless at several dollars per ton premium.

Muck Bars.—Nothing doing of any account, prices nominally \$33 to \$34, f.o.b. seller's mill.

Plates.—The demand is extremely urgent, and although prices are a couple of dollars dearer, a great many orders have been turned down, notwithstanding the fact that handsome premiums were bid for deliveries within the next 60 days. The mills are worse crowded than ever, and there is very little probability of relief until the winter months, if then. Prices are irregular, because of the special rates paid for early shipments, but minimum rates are as follows: For ¼-inch and thicker, 2.80¢ to 2.90¢; Shell, 3¢ to 3.1¢; Flange, 3.20¢; Fire Box, 3.30¢ to 3.40¢; Charcoal Iron Plates, C. H. No. 1, 3¢; Best Flange, 3½¢; Fire Box, 4¢.

Structural Material.—Similar conditions prevail as in the Plate trade, mills more crowded with work than ever, prices at the highest figures yet reached, and on top of these premiums are bid for early shipments. There is very little prospect of relief in the near future, although the mills are doing everything possible to relieve the tension. Prices nominally as follows, but sales are frequently made at higher figures: Beams and Channels, 2.40¢ to 2.50¢; Angles, 2.40¢ to 2.60¢; Tees, 2.40¢ to 2.60¢; Deck Beams and Bulb Angles, 2.65¢ to 2.80¢.

Bars.—The demand is maintained at the highest limits, besides which buyers from a distance are bidding full prices for a great deal of material for shipment to distant points. One lot of 1200 tons was taken from a nearby mill at top figures, while others of considerable importance were turned down simply because it was impossible to make deliveries as required. Minimum prices are as follows, f.o.b. nearby mills: Ordinary Bars, 1.95¢; Refined Bars, 2¢ to 2.10¢; Test Bars, 2.10¢ to 2.20¢; Steel Bars, 2.30¢ to 2.40¢.

Sheets.—The demand is very heavy, and prices have a strong upward tendency. It is difficult to quote exact prices, but they are easily a tenth higher than last week, and for best qualities are about as follows (Common Sheets two-tenths less): No. 10, 3¢ to 3.10¢; No. 14, 3.20¢; No. 16, 3.30¢; Nos. 18-20, 3.40¢; Nos. 21-24, 3.50¢; Nos. 26, 27, 3.60¢; No. 28, 3.70¢ to 3.80¢.

Old Material.—The market is irregular but not lower; although consumers are not bidding very freely, in the hope of checking further advances. Bids and offers for lots, delivered in buyers' yards, are about as follows: Cast Borings, \$11.25 to \$11.75; Wrought Turnings, \$12.75 to \$13; Machinery Cast, \$14.75 to \$15; Old Car Wheels, \$18 to \$18.50; Heavy Steel Scrap, \$17.50 to \$18.50; Steel Rails, \$18.50 to \$19.50; Iron Rails, \$21.50 to \$22.50; No. 1 Railway Scrap, \$20 to \$21; Iron Axles, \$25 to \$26; Steel Axles, \$18 to \$19.

Cincinnati. (By Telegraph.)Office of *The Iron Age*, Fifth and Main streets, {
CINCINNATI, September 6, 1899. }

The feature of the last few days of August was the very heavy buying of Mill Irons. It is impossible to arrive at a correct average price at which this business was done. If all the stories are to receive full credit there was certainly a very irregular market and a wide range of prices. Some report the bulk of business at \$14 for Gray Forge, Birmingham, with a fair amount at \$14.25, and a stiffening to \$14.50 during the past day or so, and these also say that the last named figure represents the market for that grade and No. 4 Foundry to-day. Others quote sales ranging 25c. to 50c. higher, and give the market to-day \$14.75 for the same grades. A sale of 8000 tons of Southern Gray Forge and Mottled grading above the average of its class is reported on the basis of \$15.25, Birmingham, and 6000 tons of Gray Forge and No. 4 Foundry from the same furnace is quoted at \$14.75. Sales of Southern Silvery in small lots have been made at \$20, at the furnace. Jackson County Silvery is quoted at \$27 to \$27.50 for No. 1 at the furnace. While the activity in Mill Irons attracted the greatest attention there was nevertheless no small trading in Foundry grades, and the advance in the market was shared in alike by all brands. The month just past was a record breaker, and if not the heaviest of any season it certainly was the banner summer month in the history of the Pig Iron trade at this point. The advance last week does not appear to have checked business a particle, and September opens up almost feverishly active. There are some big buyers in the market, and a further advance seems certain. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$20.00 to \$20.50
Southern Coke, No. 2.....	19.25 to 19.50
Southern Coke, No. 3.....	18.50 to 18.75
Southern Coke, No. 1 Soft.....	20.00 to 20.50
Southern Coke, No. 2 Soft.....	19.25 to 19.50
Southern Coke, Gray Forge.....	17.75 to 18.00
Southern Coke, Mottled.....	17.75 to 18.00
Ohio Silvery, No. 1.....	28.00 to 28.50
Ohio Silvery, No. 2.....	27.00 to 27.50
Lake Superior Coke, No. 1.....	21.50 to 22.50
Lake Superior Coke, No. 2.....	21.00 to 21.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$19.75 to \$20.25
Lake Superior Car Wheel and Malleable.....	24.00 to 25.00

Plates and Bars.—There is no change in the market. Business has been excellent, and the prospect for this month is good. We quote, f.o.b. Cincinnati: Iron Bars, carload lots, 2.10c., with half extras; less than carload, 2.35c., with full extras; Bar Steel in car lots, 2.30c.; small lots, 2.45c.; Bar Iron Angles, 1½ x 3-16 inch and larger, in car lots, 2.35c.; small lots, 2.50c.; Sheets, No. 10, 2.85c.; No. 27, 3.35c.; Plates, 2.75c. to 2.85c.

Old Material.—Quotations are unchanged. Business has been all that could be asked. We quote, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, \$16.50; Cast Scrap, \$11.50 to \$12; Axles, \$20 to \$21; Iron Rails, \$21 to \$21.50; Car Wheels, \$15 to \$15.50.

St. Louis. (By Telegraph.)Office of *The Iron Age*, 512 Commercial Building, {
ST. LOUIS, September 6, 1899. }

Pig Iron.—Tonnage sold during June and July was so much greater than was thought possible that the present quietness in this district causes little surprise. Inquiries are being made for 1900 delivery, and it follows that more will be presented as the market continues its advance during the closing months of this year. Experienced trade factors look for higher figures, and above all they are firm in the conviction that foundrymen should be alive to supply for next year. Just now many buyers hold off and frankly state their willingness to pay ruling prices for Pig Iron as wanted. This may be well enough in one way, but is doubtful wisdom when the question of supply is given the consideration demanded. There is no let up in consumption, but while small concerns are in the market from time to time, it would seem that heavier buyers are skeptical as to high prices being permanent. Certain prominent consumers have taken profits on low priced Iron, explaining that equal advances were not to be had on their finished product. This may be an extreme case, as users of all finished product are looking upon advances as justified, even though they may kick about paying more. Meanwhile, new figures are named almost each week, and some of the prices named below show advances as great as 50c. per ton. We quote for cash, St. Louis:

Southern, No. 1 Foundry.....	\$21.50
Southern, No. 2 Foundry.....	20.00
Southern, No. 3 Foundry.....	19.25
No. 1 Soft.....	21.25
No. 2 Soft.....	20.00
Gray Forge.....	18.50

Bars.—There is no relief as to supply of Bar Iron. Mills sales agents continue to refer orders for small lots to jobbers, as they are unable to book orders for delivery earlier than December. Carload lots are quoted at 2.20c., half extras, St. Louis. Sales out of jobbers' stock are made at 2.65c., base, full extras, for Iron. It is said that Soft Steel Bars are being taken in a number of instances where Iron was used for the sake of delivery. Mill prices on Soft Steel, carload lots, are from 2.35c. to 2.50c., half extras, East St. Louis, while rumor has it that some Eastern concerns are asking decided advances on that. Jobbers quote 2.90c., full extras, out of stock.

Rail and Track Supplies.—No marked change in volume of business has been uncovered. Prices below are same as last week, but it is probable that new figures will be named on some of the items shortly. We quote as follows: Steel Splice Bars, 2.10c. to 2.20c.; Iron Splice Bars, 2.75c., nominally; Track Bolts, with Square Nuts, 3.40c. to 3.50c.; with Hexagon Nuts, 3.50c. to 3.60c.; Spikes, 2.65c. to 2.75c.; Steel Links and Pins, 2.85c.

Pig Lead.—The last sale of Chemical was reported at 4.52½c., and refiners look for advanced figures. A few of the Missouri concerns are said to have a labor difference, which may contribute to increased value. Buyers place 4.50c. as the correct price for both Soft and Chemical. Lead Ore is unchanged at \$27 per 1000 lbs.

Spelter.—There is nothing to base quotations on, and the situation is practically as last week; 4.50c. is merely a nominal price, and the desire being seen to contract for deliveries covering a stated period may indicate that on present prices of Ore the bottom has been reached for Spelter. A turn may be in sight.

Zinc Ore.—Smelters manifest no disposition to lay in stocks, as, the price being fixed by Ore producers, there is nothing to encourage providing for future wants. The burden of carrying the supply is therefore on the mine operators. Forty-five dollars per ton was the top price.

Pittsburgh.Office of *The Iron Age*, Hamilton Building, {
PITTSBURGH, September 6, 1899. }

(By Telegraph.)

Pig Iron.—The Bessemer Pig Iron market is strong, but presents no new features. A meeting of the Valley furnaces was held in Cleveland, September 5, but no special action was taken. All the furnaces with perhaps two or three exceptions are behind in deliveries and will carry over a good deal into next year. There are no large inquiries in the market, but prices are firm at about \$22.50, Valley furnace. Forge Iron has advanced about \$1 a ton in the past week and has sold at \$19.75, Pittsburgh. Foundry Iron is very active and scarce, and No. 2 has sold at \$21, Pittsburgh. We quote Bessemer, \$22.50; Gray Forge, \$19.25 to \$19.50, both at Valley furnace; No. 2 Foundry, \$21 to \$21.50; Gray Forge, \$19.75 to \$20; Bessemer, \$23 to \$23.50, Pittsburgh. We note several small sales of Bessemer at \$23, Pittsburgh. It is also reported that a leading interest has sold a round lot of Bessemer Iron at a price equivalent to about \$23.50, Pittsburgh. It is understood the transaction was a trade, Steel being given in payment for the Iron. We also note a sale of 1000 tons of Gray Forge at \$19.75, Pittsburgh.

Steel.—There is a good deal of inquiry for Steel, particularly from the East and for Slab sizes. The local mills are not selling to any extent, being filled up so far ahead and not caring to take any more tonnage. We note a sale of 1200 tons of 4 x 4 Bessemer Billets at \$38, Pittsburgh. It is probable higher prices would be paid for Slab sizes. We have not been advised of any sales recently, but the market is all of \$38 or higher.

Muck Bars.—We note a sale of 900 tons of standard grade at \$34, Pittsburgh. Several round lots are under negotiation.

Old Material.—We note a sale of 500 tons of Old Steel Rails, mixed lengths, for remelting, at \$20 a gross ton, delivered at buyer's mill, Pittsburgh. Also a sale of 300 tons of Low Phosphorus Melting Stock at \$25.50, delivered at buyer's mill. Scrap of all kinds is scarce, and very high prices are being paid.

Spelter.—The market is higher, and prime Western grades are quoted at 5.35c. to 5.40c., Pittsburgh.

(By Mail.)

During the week prices on nearly every kind of product, from Bessemer Pig right through the whole line of Finished Material, have been advanced, and still higher prices are in sight. Bessemer Pig is reported to have sold for delivery in first quarter at \$23.75, Pittsburgh, equal to \$23 Valley. Billets have sold at \$38, Pittsburgh, for ordinary 4 x 4 Bessemer stock. Iron and Steel Bars are \$2 to \$3 a ton higher, while one mill has advanced prices on Black Sheets \$5 a ton. Plates are \$2 a ton higher, and the minimum price of Sheared is 2.75c., at mill. The market is exceedingly difficult to forecast, especially material for first half, and buyers are completely at sea whether to purchase at present exorbitant prices or to take chances later in the year. It takes a good deal of nerve on the part of a customer to go in and place contracts for material for shipment next year at prices that are more than 100 per cent. higher than they were six months ago. Probably no material has advanced as much as Plates, which have gone up fully \$35 a ton from the lowest price reached. Sheared Plates have sold in Pittsburgh at less than 1c. a lb., while, as above stated, the minimum of the market to-day is 2.75c., with leading mills quoting 3c. for first quarter. It is admitted by everybody, both seller and buyer, that prices are entirely too high, but with the exorbitant demand for material there does not seem to be any way from keeping them from advancing. It is a sellers' market, and has been for months, and with a shortage in supply on nearly everything it is a question of getting the material and not one of price.

Ferromanganese.—We quote foreign and domestic 80 per cent. Ferro at \$100, Pittsburgh. A sale of 25 tons is reported at that price.

Plates.—Owing to the excessively heavy demand and the filled up condition of the mills prices have again advanced, and we now quote: Tank, 1/4-inch and heavier, 2.75c.; Shell, 2.85c.; Flange, 2.95c.; Marine, 3c. to 3.10c.; Fire Box, 3.25c. to 4c., depending on quality, all f.o.b. at mill. The shortage in supply of Plates is getting worse, and consumers everywhere are being hampered in operation on account of not being able to get Plates as fast as needed. The situation will soon be relieved, to some extent at least, by the starting up of some of the large new Plate mills of the Carnegie Steel Company at Homestead.

Structural Material.—A good deal of work has been placed in the past week, including a number of bridges by an Eastern railroad. Mills are four to five months behind in deliveries, and, as noted last week, a great deal of tonnage will go over into next year. Owing to the continued advances in raw material another advance in price of Structural Shapes will probably be made at an early date. We have further advanced prices on Grooved Plates, and now quote: Beams and Channels, 15-inch and under, 2.25c.; 18, 20 and 24 inch, 2.35c.; Angles, 3-inch and up to 6 x 6, 2.25c.; Angles, under 3-inch, 2.50c.; Tees, 3-inch and larger, 2.30c.; under 3-inch, 2.50c.; Zees, 3-inch and larger, 2.25c.; Grooved Rolled Plates, 2.75c., Pittsburgh.

Merchant Steel.—There is a good demand for all kinds of Merchant Steel, but not as large as two or three months ago. However, the mills are filled up so far ahead that a slight falling off in demand would enable them to catch up on deliveries. Prices are very strong and we quote: Soft Machinery Steel, 2.75c. to 3c.; Hard Machinery Steel, 3c. to 3.25c.; Tire Steel, 3/4 x 3-16 and heavier, 2.50c. to 2.75c., base; Toe Calk, 2.75c. to 3c.; Plow Steel, 3-16 and heavier, 2.75c.; Sleigh Shoe Steel, 2.50c. to 2.75c.; Cutter Shoes, tapered and bent, 3.75c. to 4c.; Open Hearth Spring Steel, common, 3.25c. to 3.50c.; Crucible Analysis, 3.50c. to 3.75c.; Lay Steel, Rolled, 3.50c. to 4c.; Hammered, 4.50c. to 5c.; Pick, Cant Hook and Wedge Steel, 4.25c.; Tool Steel, 7c. and upward, according to quality, on which freight not to exceed 25c. is allowed. All the above is 60 days, less 2 per cent. off for cash in ten days from date of bill.

Bars.—There is an enormous demand for Iron Bars and it is stated that the Republic Iron & Steel Company are practically sold up to January 1. Deliveries are exceedingly difficult to get, and on any business now being entered mills are not promising deliveries until December or January. Prices are higher, and on Iron Bars in carload lots, not to exceed five sizes in a car, 1.95c. to 2c., at mill, terms net 30 days. These prices accurately represent the market at this writing, but it is probable they will be higher before long. Bars rolled from all Muck Bar stock are also higher and we quote 2.35c. to 2.50c., at mill. There is also an exceedingly heavy demand for Steel Bars and quite a wide range in

prices, some mills quoting as low as 2.25c., while a leading local mill has advanced prices in the past week to 2.50c., half extras, with 5c. additional for cutting to lengths. We quote the market at 2.25c. to 2.50c., depending on the order and deliveries wanted. Steel Bars for prompt shipment would probably command 2.50c. at mill.

Sheets.—A leading local mill has advanced prices on Black Sheets \$5 a ton, and now quote No. 27, Bessemer stock, box annealed, one pass through cold rolls, at 3.25c.; No. 28, 3.35c., with \$2 additional for Sheets rolled from Open Hearth stock. Some mills continue to quote No. 27 on the basis of 3.10c. to 3.15c. and No. 28 3.20c. to 3.25c. There is a very good demand and the market is strong. Buyers are trying to place contracts for delivery into next year, but the mills do not seem disposed to take business for first half delivery owing to uncertainty about prices of Sheet Bars. The demand for Galvanized Sheets in September and October is expected to be considerably heavier than in July and August. Specifications on old contracts are coming in very liberally and a good deal of new tonnage is being placed. We quote at 70 and 10 per cent., with 15c. freight in carload lots.

Pipes and Tubes.—There is an inquiry in the market for 22 miles of Line Pipe, large sizes, for shipment to South Africa. It is not unlikely the order will come to Pittsburgh. There is a good demand for Merchant Pipe and the market is very strong. Established prices are largely nominal and Pipe is being sold all the way from 50 off to 50 and two 10's in carload lots. Mills making Casing are away behind in orders and in some cases advances on established prices are being paid. We quote Screw and Socket Joint at 40 per cent. and Inserted Joint Casing at 35 per cent., with an extra 5 per cent. to dealers. It is predicted that there will be a considerable shortage in supply of Boiler Tubes this fall and higher prices are likely. We quote: 1 1/4 to 1 1/2 inch Iron and Steel, 40 per cent. off list; 1 3/4 to 2 1/2 inch, Iron, 50 per cent.; Steel, 55 per cent.; 2 3/4-inch and larger, Iron, 55 per cent.; Steel, 57 1/2 per cent., with an extra 5 per cent. to dealers.

Skelp.—Demand for Skelp is large and prices strong, with the tendency of the market decidedly upward. We quote Grooved Iron and Steel Skelp, in ordinary widths, at 2.25c. to 2.35c. and Sheared at 2.60c. to 2.75c., delivered at buyer's mill, Pittsburgh district. Skelp for prompt shipment would probably bring higher prices.

Connellsville Coke.—In August the H. C. Frick Coke Company shipped 34,614 cars of Furnace, Foundry and Crushed Coke, the largest month's shipment in the history of this concern. The shipments would have been considerably heavier had it not been for a car shortage. There is not much inquiry for Coke, nearly all the consumers being covered by contracts, while practically the entire output of the Connellsville region is under contract. Small lots of Furnace Coke have sold at \$2.50 and Foundry Coke at \$2.75 a ton, at oven. Last week there were 18,122 ovens in the Connellsville region active and only 985 idle or building. There has been added to the equipment of the region 25 ovens at the Adelaide plant of the H. C. Frick Coke Company, 25 to the plant at Mutual, or No. 2 United, and 261 at Hazlet, which were abandoned two years ago, but which are now undergoing repairs for firing.

The Coal operators in Ohio have issued a circular to the trade, stating that prices for Coal will be 10c. higher than that of the Pittsburgh district, which is \$1.10 a ton. The circular states: "To the Trade: Until further advised the following will be our prices for Coal, per ton of 2000 lbs., on cars at the mines: Lump, \$1.20; Steam Lump, \$1.10; Run of Mines, \$1; Nut, 75c., and Coarse Slack, 30c. The demand for Coal is heavy and cars are scarce, therefore we would suggest that orders be placed in advance of immediate wants. Please name with each order the route by which you prefer shipments."

Cleveland.

CLEVELAND, September 5, 1899.

Iron Ore.—The prediction rather freely made some weeks ago that September would in all probability see the commencement of activity in the matter of sales of Iron Ore for 1900 delivery is not destined to justification. The news from the mining region that stock piles are in many cases nearly exhausted, combined with the increasing certainty that there will not be available before the close of the season sufficient vessel tonnage to move the Ore desired, have brought home to many sales agents the certainty that they will not be able to deliver all the Ore contracted, and as a sequence redoubled efforts are

being made to bring down every ton of Ore possible. The indications now are that negotiations looking to sales of Ore for next season need not be expected before the middle of October and possibly may be held off until November 1. When they do open it will probably be on a basis of an increase of \$1.50 over the past year's prices. The freight rates for the lake transportation of Ore seem to be heading steadily for the \$2 mark, which was scoffed at a short time ago. The increases made during the past week fully equaled those of its predecessor, and available vessels were just as scarce as ever. There have been no fixed rates for Ore charters, and although considerable effort has been made to keep the matter secret there is no doubt but that fancy figures were paid in several instances. The rate from the head of Lake Superior ranges from \$1.75 to \$1.86, charters having been made at rates within this range within the past five days. The rate from Marquette has taken a jump to \$1.50, and seems firmly established there, while all Escanaba tonnage brings advance of 10c. over former quotations, the present figures being \$1.20 to Cleveland and \$1.30 to Buffalo. Vessels were scarce all week, and will be even scarcer this week, as a result of the blockade of Ore carriers at Lake Erie ports, owing to the unwillingness of the men to work on Labor Day. Some of the Ore shippers have announced that they will immediately cease shipping if the rate goes to \$2, but in view of existing conditions this is generally regarded as an idle threat. A ray of hope in the situation is found in the failure of the strike at the Lake Superior (Carnegie) mines. Mine operators here say that this ends all danger of a general strike in the Ishpeming district, and they take the ground that in view of the advance recently granted to the Ore loaders there is little probability of any further interruptions to the traffic from labor difficulties. One notable indication of the evident alarm with which the Ore interests view the situation, not only as regards this year, but next also, is found in their continued efforts to purchase or charter outright Ore carrying vessels. One Cleveland firm, Corrigan, McKinney & Co., have purchased for \$257,000 ten vessels, with an aggregate carrying capacity of 17,200 tons. Tod, Stambaugh & Co. have secured six vessels, with a capacity of 15,000 gross tons, and Pickands, Mather & Co. have added to their fleet, by the purchase of several new vessels.

Pig Iron.—The past week has shown an increased activity in Foundry Irons, and several transactions in Bessemer have been reported, the first in some time. Sales of some small lots of Bessemer, for delivery during the remainder of the year, were made during the week at \$22.50, Cleveland. There has been little selling for next year. The quotations on Foundry Irons for 1900 delivery have been characterized by another material advance. Sales of No. 2 Foundry, quite good sized in the aggregate, are reported at \$22, and it is said that in all probability there will be few sales of No. 1 Foundry in future at less than \$22.50. The claims of some buyers that next year will see a drop in prices do not seem to have had any material effect upon the market. Buyers interested in the Bessemer situation have been anxiously awaiting the meeting of the Bessemer Furnacemen's Association in this city on the 5th inst. Sales of Southern Irons continue in fair proportion. Quotations on Gray Forge continue about as reported last week, as does also the nominal price quoted for Lake Superior Charcoal.

Finished Material.—Beyond some small transactions in Structural and a slight revival of inquiry in the Rail market, the situation has been characterized by few new features this week. The Bar Iron market is exceedingly strong, and an advance may be anticipated at almost any time. There is a brisk demand for Plate, particularly Ship, and this continues to a considerable extent, despite the fact that shipbuilders have apprised owners that prices will be fully 50 per cent. in excess of the cost of similar vessels a year ago.

Old Material.—The stronger feeling continues and the advances in prices noted last week seem to be well taken. These prices still obtain, but that the supply has fallen off slightly is evidenced by the fact that dealers are compelled to pay better prices in order to secure material. Occasional inquiries from Eastern consumers continue to be received.

(By Telegraph.)

Vesselmen and Ore shippers are considerably worried by the sinking of the Rockefeller steamer "Douglas Houghton," the largest vessel on the lakes, in St. Mary's River. The deep water channel is completely blocked and Ore traffic from Lake Superior will be virtually suspended for at least ten days. Old channel is open, but boats drawing more than 12 feet cannot pass. The Ore rate from Lake Superior to-day went to \$2, and charters

were made at that figure. Robert Rhodes of Cleveland this morning contracted with the American Shipbuilding Company for another large Ore carrier, to be out next season.

Birmingham.

BIRMINGHAM, ALA., September 4, 1899.

The market was again erratic the past week, for an acute demand sprung up that was hard to satisfy. Prices were advanced without lessening the demand and the sales were liberal and very well distributed among the buyers all over the country. Order books are being rapidly filled. As illustrative of the keen demand that has prevailed for Iron, the sales of the Tennessee Coal, Iron & Railroad Company for the month of August foot up 150,000 tons. Their output is running about 65,000. So during August they sold approximately two and a half months' production. Others have not been such free sellers, but they have sold all they cared to book. If the demand that has prevailed is maintained for only a little while longer deliveries for the first half of 1900 will be closed. The doubting Thomases of the trade are finally convinced of their error and are coming into the market as free buyers at prevalent prices. There is yet more or less variation in prices. There were sales of No. 1 Foundry for first half of 1900 at \$17.75 and of No. 2 Foundry at \$16.75, while one order for 2000 tons on the basis of \$17 for No. 2 Foundry was declined, deliveries desired being for December, January and February. This declination is confirmatory of the assertion that deliveries desired for first half of 1900 are difficult to obtain.

Quotations at the close of the week were \$17.50 for No. 1 Foundry, \$16.50 for No. 2 Foundry, \$15.50 for No. 3 Foundry, \$15 for No. 4 Foundry and \$14.75 to \$15 for Gray Forge. The Soft grades are firm at the prices of Nos. 1 and 2 Foundry. It is idle to prognosticate the price that Iron will reach, but one can say that \$20 for No. 2 Foundry would occasion no surprise to the trade here. In the export business in the way of fresh transactions there is none. Controllers of ocean room have been very liberal in offering room and in making rates without inducing business. None of them asks over \$3 to Liverpool now. Even that low rate would fail to secure business if Iron could be had to ship, as there is no margin now for successful competition with the British markets.

The Sloes Iron & Steel Company in their calculations expect to have the Philadelphia Furnace at Florence and the Hattie Ensley Furnace at Sheffield in blast in November. But in the existing condition of affairs one can carefully calculate upon time of completion and then double it for practical results. The Republic Iron & Steel Company have placed orders for six blowing engines, which indicate two new stacks at Thomas, and preparations are being made for the inauguration of the work. Other material has been ordered and the improvements to be made at the rolling mills will be on a liberal scale. A Steel plant of large capacity is also assured.

But a short time ago in the Brown Ore field at Russellville one tract that was specially rich in Ore was sold for \$136 per acre; another tract brought \$116 per acre. The ordinary price varies from \$10 to \$20. There is a strong disposition to pick up these lands that are eligibly located and lay them away for that convenient season when their scarcity will add greatly to their value. The output at Russellville will be largely increased in the next few days, as there is a ready market for larger quantities than have so far been furnished. Information that is reliable is to the effect that a contract for the new Cast Iron Pipe plant has been made with Cleveland parties, who will at an early date commence its erection. As previously stated, it will be at Bessemer.

Coal is assuming more and more importance with each added year. The Pratt mines, which are the property of the Tennessee Company, yielded approximately 200,000 tons in August, and the total yield of all the mines being worked by the company was 385,000 tons in August. During the summer months the railroads utilize the time in filling up their Coal stations preparatory for use in winter. This year, so great has been the demand for cars that there was no chance for the roads to prepare stores for winter use. The result is that they will be added to the list to be provided for during the winter, increasing the tension that is sure to attend the Coal trade. Cars now are scarce and none are allowed to lie idle that can do service.

The National Manufacturers' Association have purchased in Shanghai, China, a building, and as soon as practicable a permanent exhibition will be established there. One hundred firms have asked for space. Among the concerns to be represented are Carnegie Steel Company, Limited, of Pittsburgh; Baldwin Locomotive Works, Philadelphia, and Phoenix Bridge Company of Phoenixville, Pa.

Metal Market.

Office of The Iron Age, 232-238 William street, {
New York, September 6, 1899. }

Pig Tin.—During the last week the market was not an active one. Prices for spot have, however, advanced and were kept firm by the interests that control the spot stock. At the close to-day this market was quoted 32c. to 32½c. for spot and 31.35c. to 31.45c. for September and October delivery. The London market was not as active as it has been heretofore, and even at that the premium on future delivery has disappeared and a discount of as much as £1 was established. To-day's closing London prices are £143 12s. 6d. for spot and £142 16s. 3d. for three months' futures. The total visible supply on September 1 was 6266 tons below that of September 1 of last year.

Arrivals at the Atlantic ports amounted to.....	Tons.
Total arrivals since January 1, 1899.....	2,820
Of which from Straits by direct steamers.....	21,598
Of which from United Kingdom.....	11,975
Of which from Holland.....	8,655
Of which from European Continent.....	868
The deliveries for August we estimate at.....	100
Total deliveries since January 1, 1899.....	2,800
The shipments from Straits amounted to.....	21,100
Against previous month.....	3,750
Against August, 1898.....	3,900
Against August, 1898.....	3,500
Against August, 1898.....	300
Against previous month.....	230
Against August, 1898.....	130

Statistics for the United States—Pacific ports excluded—September 1, 1899, show as follows:

Stocks, including landing.....	Tons.
Afloat.....	2,298
Total.....	3,925
Total.....	6,223

Below we give the total statistics for Europe and the United States, as compiled by the New York Metal Exchange, showing:

Total visible supply September 1, 1899.....	Tons.
Against total visible supply August 1, 1899.....	17,746
Against total visible supply August 1, 1899.....	19,001
Against total visible supply September 1, 1898.....	24,012

Copper—Is firm but without change. Prices which have ruled for some weeks are still quoted. Lake Superior Ingot is 18½c., Electric Cakes, Wire Bars and Ingots 17½c., Cathodes 17½c. to 17½c., and Casting Stock 17½c. It is said that the large Brass mills of the Naugatuck Valley are buying for January and February, and that they are very busy. The manufacturers of Electric Wire are especially active in this respect. One large concern is said to be contemplating purchasing for the first quarter of next year. Consumers of Copper who expected to see the mines recently opened up producing heavily by this time are rather surprised at their small production. The London market showed a little more activity and closed to-day £77 1s. 3d. for spot, £77 6s. 3d. for futures and £81 for Best Selected.

The exports of domestic Copper from New York and Baltimore for the month of August, as per official returns, and compiled by the New York Metal Exchange, were as follows:

From New York.....	6,170 tons Copper.
From Baltimore.....	4,148 tons Copper.
Total.....	10,318 tons Copper.

During the same month the following arrived at this port:

From Europe.....	992 tons Copper.
From Mexico.....	652 tons Copper.
From Mexico.....	85 tons Matte.
From Tilt Cove.....	9,392 tons Ores.
From Chili.....	1,000 tons Ores.

Total exports since January 1, 1899, exclusive of Southern ports for August, 69,003 tons; against same period in 1898, 89,506 tons.

Pig Lead—Is quiet and the prices quoted by the American Smelting & Refining Company are a shade easier. New York is quoted 4.60c. for spot, while the St. Louis quotation for spot is 4.50c. It is feared that the miners of Missouri will strike on account of the law prescribing that miners working lower than 200 feet below the surface shall work but eight hours per day. They are willing to work but eight hours, but demand full pay, which the employers are not inclined to grant. London has advanced to £15 5s. Arrivals at this port for the month of August were:

From Mexico, about.....	Tons.
From London, about.....	5,700
From Mexico, ores.....	30
From Mexico, ores.....	941

Exports in bond from this port amounted to 4766 tons of 2240 lbs.

Spelter.—After a further drop in the market to

5.30c. a reaction brought prices up to 5.65c. to 5.75c. for spot, and 5.55c. to 5.65c. for September and October. London is quoted £23 17s. 6d., and St. Louis telegraphs 5.35c. to 5.40c. Ores are unchanged at \$45 per ton. During the month of August 50 tons arrived at this port from England. The exports were 1210 tons Ores from this port.

Antimony.—Hallett's remains unchanged at 9¼c., while Cookson's is firm at 11c.

Nickel.—There has been no change. Prices for Canadian range from 36c. to 40c., for lots larger than 1000 lbs. and 40c. and upward for smaller quantities.

Tin Plate.—The American Tin Plate Company are still quoting \$4.82½ to \$4.87½ per box for 100-lb. cokes, New York delivery. An advance has been made, however, in Cross Cokes. The price has been advanced from 65c. to 95c., and Charcoal and other goods were advanced in proportion. While the price in Steel has been advancing of late the prices of these goods remained on the low scale. With Steel at 3½c. the actual cost of the Steel in the Cross Cokes is 98c., figuring 28 lbs. to the box.

American Car & Foundry Company.

An official statement of the business done by the American Car & Foundry Company for the five months, March, 1899, to July, 1899, inclusive, was given out after a two days' session held by the directors of the company last week. A dividend of 1¼ per cent. was declared on the preferred stock, payable November 1. The statement is as follows:

Passenger cars manufactured.....	61
Freight cars manufactured, including refrigerator and caboose cars.....	26,269
Wheels manufactured for passenger, freight, motor and mining cars.....	315,316
Axles manufactured for passenger, freight, motor and mining cars, tons.....	5,608
Castings manufactured for cars, locomotives and miscellaneous work, tons.....	29,106
Rail iron made, tons.....	30,186
Water pipe made, tons.....	4,154
Brass journal bearings made, pounds.....	424,800

In addition to the above there was a large business in repairs of cars and sales of forgings, malleable iron, lumber and miscellaneous articles.

Net profits for five months, \$1,238,588.24.

The results for August are estimated to be at least equal to the average for the five months.

Orders have been received during August for about 6000 cars.

Dividend of 1¼ per cent. on preferred stock declared, payable November 1. Books close October 10; open November 3.

By-law has been adopted this day making first Tuesday of January, April, July and October the days on which dividends shall be declared. These dates were found necessary to enable accounting department to compile actual results for each quarter before the meetings of the board.

The dividend declared to-day is made payable November 1 in order to conform to the above dates.

Pittsburgh Steel Hoop Company.

The Pittsburgh Steel Hoop Company, Ferguson Building, Pittsburgh, who are erecting a plant at Glassport, Pa., for the manufacture of steel hoops and bands, are pushing the construction as fast as possible, and expect to be in operation by November 15. The concern will be equipped to roll a full line of hoops and bands, skelp and special shapes. The equipment includes two 20-inch trains, with two sets of housings, driven by a large Corliss engine, and also one 10-inch train driven by two engines and one 8-inch train also driven by two engines. The concern are installing a large Laughlin continuous heating furnace to heat billets for the two 20-inch mills, and also two regenerative gas furnaces to heat billets for the two 8 and 10 inch mills. A complete gas producer plant of sufficient capacity to supply all the furnaces is also being installed. Hydraulic lifting and conveying tables and other modern mechanical devices to cheapen cost of production are being erected, and the entire equipment of the plant will be of the most modern design throughout. The concern expect to turn out about 140 tons per day. We understand arrangements have been made that will guarantee them ample and steady supply of steel. Selling agencies will soon be established, and the product of the concern will be on the market in a short time.

An order for steam shovels, engines, conveyors and automatic railways has been awarded to the C. W. Hunt Company of 45 Broadway and Staten Island by a Danish

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING SEPTEMBER 6, 1899

Cap'l Issued.		Sales	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.
\$29,000,000	Am. Car & Foundry, Common..	3,240	17 -17 1/4	-17	-17	.....	-17	17 -17 1/4
29,000,000	Am. Car & F'y, Pref. (7% Non-Cu.)	5, 83	66 1/2-67	66 1/2-67 1/2	-66 1/2	.....	65 1/2-67	66 1/2-66 1/2
19,000,000	Am. Steel Hoop, Common.....	6,093	39 -39 1/2	38 1/2-39 1/2	38 1/2-38 1/2	.....	38 1/2-38 1/2	38 1/2-38 1/2
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)	4,400	84 1/2-84 1/2	84 1/2-84 1/2	-84 1/2	.....	84 -84 1/2	84 1/2-85
50,000,000	Am. S. & W., Common.....	17,295	57 1/2-58 1/2	56 1/2-58 1/2	56 1/2-57 1/2	.....	56 1/2-57 1/2	57 1/2-58 1/2
40,000,000	Am. S. & W., Pref. (7% Cu.)....	2,425	99 -99 1/2	99 -99 1/2	98 -98 1/2	.....	98 1/2-99 1/2	99 -99 1/2
28,000,000	Am. Tin Plate, Common, N. Y....	6,057	43 1/2-44	43 1/2-44	-43 1/2	.....	43 -44 1/2	43 -43 1/2
18,000,000	Am. Tin Plate, Pref., N. Y. (7% Cu.)	100	.....	-90 1/2	.....	.....	.....	.....
28,000,000	Am. Tin Plate, Com., Chic.....	1,118	43 1/2-44	.....	43 1/2-43 1/2	.....	43 1/2-44	43 -43 1/2
18,000,000	Am. Tin Plate, Pref., Chic. (7% Cu.)	325	-90 1/2	90 1/2-90 1/2	.....	.....	.....	.....
7,500,000	Bethlehem Iron.....	106	.....	.....	-60	.....	-62 1/2	.....
15,000,000	Beth. Steel, Par \$50, \$1 paid in.	135	.....	-22	.....	.....	.....	-21 1/2
7,974,550	Cambria Iron, Phila.....	112	.....	-44 1/2	-45	.....	.....	.....
16,000,000	Cambria, Steel**.....	3,791	22 1/2-23	22 1/2-23	22 1/2-23	.....	22 1/2-22 1/2	23 -23 1/2
11,000,000	Col. Fuel and Iron.....	55,588	51 -52 1/2	51 -51 1/2	51 1/2-52	.....	51 -56 1/2	57 1/2-60 1/2
46,484,300	Federal Steel, Common.....	53,827	60 1/2-62	59 1/2-60 1/2	59 1/2-60 1/2	.....	60 1/2-61 1/2	61 1/2-62 1/2
53,253,500	Federal Steel, Pref. (6% Non-Cu.)	7,457	82 -83	-82	-81 1/2	.....	81 1/2-82 1/2	82 1/2-83 1/2
32,000,000	National Steel, Common, Chic..	540	56 1/2-56 1/2	-55 1/2	.....	.....	.....	56 -56 1/2
27,000,000	National Steel, Pref., Chic. (7% Cu.)	507	-98	-98	-98	.....	.....	98 -98 1/2
32,000,000	National Steel, Common, N. Y.	7,425	56 -57	55 1/2-56	55 1/2-56	.....	55 1/2-56	56 1/2-56 1/2
27,000,000	Nat'l Steel, Pref., N. Y. (7% Cu.)	2,815	98 -98 1/2	-97 1/2	-97 1/2	.....	98 -98 1/2	98 -98 1/2
5,000,000	Penna., Common, Phila.....	.....	.....	.....	.....	.....	.....	.....
1,500,000	Penna., Pref., Phila.....	4	.....	.....	-87 1/2	.....	.....	.....
12,500,000	Pressed Steel, Common.....	1,750	59 1/2-59 1/2	-59 1/2	-59 1/2	.....	59 1/2-60	59 1/2-60
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	1,705	89 1/2-89 1/2	89 1/2-89 1/2	-89 1/2	.....	89 1/2-90 1/2	89 1/2-90
30,000,000	Republic Iron & Steel, Common.	85,531	28 1/2-29 1/2	28 1/2-29 1/2	28 1/2-30	.....	30 1/2-32 1/2	30 1/2-33 1/2
25,000,000	Repub. Iron & Steel, Pref. (7% Cu.)	16,232	77 1/2-78 1/2	77 1/2-78 1/2	77 1/2-78 1/2	.....	78 -79	77 1/2-78 1/2
20,000,000	Tennessee Coal and Iron.....	88,500	95 1/2-96 1/2	96 -98 1/2	98 -99 1/2	.....	99 -108	109 1/2-117 1/2
1,540,000	Warwick Iron & Steel, (par \$10)	1,775	12 1/2-12 1/2	-12 1/2	-12 1/2	.....	-12 1/2	12 1/2

* Par \$50. ** \$1.50 per share paid in. + 6% guaranteed by Beth. Steel Co. Late Philadelphia and Chicago sales by telegraph.
Bonded Indebtedness: Am. S. & W., \$130,656; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., \$13,300,000; Illinois 5% \$7,417,000; E. J. E. R. R. 5%, \$1,600,000; Johnson 6%, \$8,732,000; D. & I. R. R. R. 5%, \$1,000,000; 2d D & I R. R. R. 6%, \$10,000; land grant D. & I. R. R. R. 5%; National Steel, \$561,000; Tennessee C. I. & R. R. Co., \$8,367,000; 6% \$1,114,000; 7% \$1,000,000; 7% cu. pref.; Pennsylvania Steel, \$1,000,000; Steelton 1st, \$2,000,000; Sparrow's Point 1st, \$4,000,000; consolidated both plants; Bethlehem Iron, \$1,351,000; 5% maturing 1907; Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel none; Warwick Iron & Steel none. Colorado Fuel & Iron Co.; Col. Fuel Co. Gen. Mort. 6% \$880,000; Col. Coal & Iron Con. Mort. 6% \$2,810,000; Col. Fuel & Iron Gen. Mort. 5% \$2,303,000. Also outstanding \$2,000,000 preferred stock with accumulated dividends of \$640,000 to June 30, 1899.

concern. The steam shovels will have a capacity of 3 tons per trip, or 7000 tons per day. It is said that the cost of the entire outfit will aggregate \$80,000. The plant is to be erected at Copenhagen.

Iron and Industrial Stocks.

The movement of stock prices during the week has been very irregular. Declining values appear in a number of cases, while several stocks have manifested a pronounced tendency toward a higher level. Chief among the latter are Tennessee Coal & Iron, Colorado Fuel and Republic Iron & Steel. Some of the net changes in prices have been notable. Tennessee Coal & Iron has risen some 18 points, the highest price, 117 1/2, making a new high record. Colorado Fuel & Iron has advanced 7 points. The largest sales for the week are shown by these stocks, together with Federal Steel, common, and Republic Iron & Steel, common. Closing quotations on a number of industrial stocks are as follows:

	Bid.	Asked.
International Silver, Common.....	14	16
Otis Elevator, Common.....	36	37
Otis Elevator, Preferred.....	100 1/2	101 1/2
H. R. Worthington, Preferred.....	108	110
Cramp's Shipyard Stock.....	83	86
Pratt & Whitney, Common.....	3 1/2	5
Pratt & Whitney, Preferred.....	38	48
E. W. Bliss, Common.....	137	...
E. W. Bliss, Preferred.....	125	...
U. S. Projectile.....	95	100
Barney & Smith Car, Common.....	21	25
Barney & Smith Car, Preferred.....	81	86
International Pump, Common.....	24 1/2	25 1/2
International Pump, Preferred.....	73 1/2	74
New Haven S. & I.....	7 1/2	...
Susquehanna I. & S.....	7 1/2	...
Diamond State Steel.....	7 1/2	...
Tidewater Steel.....	19 1/2	...
Sloss & Sheffield Steel & Iron.....	112	115
National Tube, Subscriptions.....	112	122
American Steel & Iron.....	15 1/2	...

The Chicago and Northwest Machinery Market.

Office of The Iron Age, 805 Fisher Building, CHICAGO, September 2, 1899.

Those who looked for a breathing spell in August were disappointed. Instead of being a vacation period great activity prevailed in machinery circles. In fact, with not a few concerns the month was a record breaker, surpassing the performances of 1892, the year to which the veterans in the trade turn when they wish to recall the happenings in the "good old times." Users of all kinds of machinery are driven with work as they never were

before, and those who thought their equipment equal to any reasonable demand are constantly adding new tools or increasing their power to enable them to get out a still larger product. Small engines are being replaced by larger ones, boiler capacity is being quite generally increased, and a constantly growing demand is experienced for power transmission machinery and appliances and all kinds of manufacturers' supplies. It is worthy of note that by far the bulk of the demand still comes from old established concerns, which are vigorously expanding. New enterprises are springing up to some extent, but their growth is checked by the difficulty in getting satisfactory deliveries of equipment. It is discouraging, after all plans have been matured and financial arrangements made, to find that it will be necessary to wait until far into next year for the completion of some essential machine or apparatus. Labor troubles are also having considerable adverse effect on new enterprises. Much delay has been occasioned in Chicago, for instance, by the brick makers' strike, which lasted for nearly a month, and by the boiler makers' strike, which has not yet been completely settled. Plans have been completely disarranged by these circumstances. The continuance of heavy trade during the summer months causes the most buoyant anticipations of fall business. It is believed that the future has in store something still better than has thus far been experienced. The advices received from manufacturers and dealers are of a uniform character, all reporting a large volume of business with no sign of an abatement in the demand.

Manning, Maxwell & Moore, Chicago, had an unprecedented month in August, running above the corresponding month in 1892. The only difficulty they now have is in securing deliveries from manufacturers. Their business recently has been particularly large in electric cranes. They have also received good orders for large tools. They have taken the Chicago agency for the new bolt cutter brought out by the Ajax Mfg. Company. Prices are still advancing on machine tools, but the higher cost is now accepted by the trade as a matter of course, and if a tool can only be furnished at the time desired by the buyer he pays the price without any demur.

The Compress Wheel Company, Chicago, report a much larger business in polishing wheels in August than usual during the summer months. They are consequently looking forward to a much heavier fall trade than usual. Chas. H. Besly & Co., Chicago, find no falling off in

the demand for manufacturers' and machinists' supplies. They have been doing a heavy business for months, which has constantly compelled them to make additions to their force. Their factory, at Beloit, Wis., is extremely busy; orders for machines are being received from far distant sections. They are bringing out some new tools which they have had in contemplation for a long time but are now just getting able to reach.

The Steel Ball Company, Chicago, expected to be in their new factory by this time, but owing to the delay in its construction by the brick makers' strike and other labor troubles the completion of the factory will probably be delayed until about October 1.

Marshall & Huschardt Machinery Company, Chicago, say that August was the best month they ever had, the orders for machine tools having included some pretty large specifications. These orders have mainly come from old concerns. They have received many more complaints about deliveries than protests against high prices. People are buying machinery even if they have to wait for delivery for months. The company are themselves placing orders now for tools which will not be delivered for six months. They find heavy tools the most difficult to get. They have recently taken agencies for the sale of engine lathes manufactured by the Barker & Chard Machine Tool Company and Greaves & Kruseman, both of Cincinnati.

The Stover Mfg. Company, Freeport, Ill., say that the trade in their goods is as strong as ever. There seems to be no let up, and they are meeting the same difficulties now as those encountered two months ago in making goods fast enough to meet the wants of their trade. The prospect for the fall business is most encouraging for feed mills, wind mills and hardware specialties.

J. J. Ryan & Co., brass founders and finishers, 72 West Monroe street, Chicago, state that if the present is any criterion of the future trade, taking the month of August as a basis, the fall trade promises to be the largest in the history of their concern. It has been their experience that the months of July and August have proved to be the quietest months in the year. This August has been a striking exception to the rule. Trade in all departments has shown an unusual increase. It is only a few months since they increased their foundry capacity very materially, and at the time it looked as if they had provided for any possible contingency in the way of rush orders that might arise. They are now making arrangements for still further enlarging their plant, to be prepared for the heavy fall and winter business, which they are confident is coming. They have received during the month some very large orders for hydraulic bronze castings and one order for seven castings which averaged 850 pounds each. They also note the receipt of a good sized order for very small fine bronze castings from Memphis, Tenn. The babbitt metal, brass pattern, polishing and plating departments, as well as the foundry, have all participated in making the month of August a very satisfactory and prosperous one.

McDowell, Stocker & Co., Chicago, report a satisfactory business in machine tools in August but not quite so large in volume as their July business, which was exceptionally heavy. They are now figuring on a large number of new deals and regard the outlook for fall business as not only very good but the best for many years. Some new enterprises are coming up, none of which are large, but in the aggregate will take considerable machinery. They find builders of machine tools far in arrears on deliveries and have experienced some annoyance by the cancellation of contracts they had made on account of the inability of manufacturers to carry out their engagements.

The Chicago Pneumatic Tool Company, Chicago, had an August trade more than double that of the corresponding month of 1898. The demand for their tools and appliances shows no abatement, but on the contrary each month shows an advance over the preceding month. Their trade has been widely scattered over all sections of the country, indicating a healthy condition of business in all quarters. Having all the latest and best manufacturing appliances they have been able to satisfactorily meet all calls for these tools.

Rudolphi & Krummel, Chicago, say that the rush of business continued during the month of August. Orders have been placed mostly by the hardware and agricultural implement makers, including a number of presses of special design for bending and forming. They have also had an order for a press with special feeding devices for turning out parts of furniture casters automatically. The machinery contracted for by the Rock Island Arsenal for making wire and metal parts for harness and military equipment has been completed and shipped.

The Manistee Iron Works Company, Manistee, Mich., say that their machinery trade for August was exceptionally good. It is usually a dull month with them, but this year they have had to increase their force. Among other things they are building a large hydraulic press for

the P. H. & F. M. Roots Company, Connersville, Ind., having secured the order in competition with Eastern manufacturers. They are just shipping a water works pump of their own design to the Thompsonville Water Works, Thompsonville, Mich. They are being asked for particulars and figures on their double effect vacuum pans from salt manufacturers in all parts of the country.

The New Doty Mfg. Company, Janesville, Wis., say that August held up to the record of the previous months. They have had all they can do, and orders have come in continually, so that they are as far from catching up now as they were three or four months ago. They are increasing their machine shop capacity and putting in some new tools, and preparing in other ways for the good business that they expect next year. Prices for machines are stiffening.

Williams, White & Co., Moline, Ill., report that their trade shows no signs of slackening. They are full of orders and are being delayed considerably in deliveries. They have taken orders recently for very large punches and shears from Eastern parties.

Joseph T. Ryerson & Son, Chicago, say that the demand for boiler makers' and sheet metal workers' machinery for August was very satisfactory, indicating quite an improvement over previous months. Delays in the delivery of such machinery, however, are unavoidable, and anything in the nature of a new equipment ordered to-day cannot safely be promised for several months to come. Prices on all kinds of machinery in which they have an interest not only are firm but have shown a radical advance during the summer.

The Vilter Mfg. Company, Milwaukee, Wis., say that their trade in the month of August was exceptionally good. The month brought them a great deal more business than August, 1898. They have taken particularly many Corliss engine orders, the larger number of them for large sizes for factory purposes indicating that many factories are increasing their capacity and new factories are being established. They are continuing to operate their works day and night and the outlook for the near future is still very promising.

The Standard Pneumatic Tool Company, Chicago, say they are still unable to promptly supply the demand for their Little Giant pneumatic tools and appliances, having sold 50 per cent. more machines in August than during the corresponding month last year. The amount of business transacted has been considerably augmented by their rapidly growing foreign trade, which has now assumed such proportions that they will be compelled to greatly enlarge their plant in the near future to meet requirements.

Perry Ransom, manufacturer of machinery and tools, Oshkosh, Wis., says that his trade for the past month has not been as brisk as expected, and yet it was larger than for the same month last year. He has, during the month, sold several of his 12 and 18 inch disk grinders. He experienced considerable trouble for some months in obtaining raw material. He has just placed orders for some new lathes and planers, the majority of which he cannot get until about the first of next year. The outlook indicates that he will be very busy this fall and next winter.

The Charles F. Elmes Engineering Works, Chicago, say that the demand for their engines, hydraulic presses, &c., is still good and the outlook is encouraging. Their August business was much better than in the same month last year.

Wickes Brothers, Saginaw, Mich., say that in some lines they have had about the same demand as previously, but in others a little falling off is observed. The greatest diminution of inquiries is noticed in the boiler line. They have, during the past month, closed many unusually good contracts.

All of the beet sugar manufactured in Michigan this year will be made with steam generated by Wickes vertical water tube boilers. They have in the boiler shop tool line, aside from several other good orders, sold a very heavy set of vertical plate bending rolls to the Manitowoc Steam Boiler Works, Manitowoc, Wis. This tool is driven by a pair of direct attached horizontal engines and is capable of bending boiler plates 2 inches thick and 10 feet wide.

Hill, Clarke & Co., Chicago, enjoyed a very heavy trade in machine tools in August. They report continued trouble in meeting the demand of their customers on account of the difficulty in getting satisfactory deliveries from manufacturers. Prices of the tools represented by them continue to advance, owing to the increasing cost of raw materials.

The M. C. Bullock Mfg. Company, Chicago, state that the month of August saw no diminution of business as compared with the preceding month, and as compared with August of last year business vastly increased. They have closed orders for mining machinery for South Africa, Australia and New Zealand, are building a hoisting plant for one Illinois mining company and are erecting a plant for another.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, {
New York, September 6, 1899. }

There is no change of importance in the situation. It is reported that several large contemplated deals are being held back simply because of the protracted deliveries which are being named by the machinery builders. The principals of these deals, it is said, are of the opinion that a falling off is about due, and it is for the effect of this that they are waiting. We hear of a large transaction for foreign account that has just been consummated through Manning, Maxwell & Moore. It is stated that the amount involved covers fully \$55,000. We understand that a representative of the European house which made the purchase was in New York conducting the deal personally. Particulars cannot be obtained at this time. Representatives of a large Italian firm are also said to be in this country negotiating for the purchase of large amounts of machinery. They will be taken care of by Manning, Maxwell & Moore, and will visit many of the large industrial plants in this country.

One of the most influential machinery merchants in this country said yesterday: "There are a great many manufacturers in this country who have actually needed tools for some months. Thinking that the advances which have recently been made by machine tool builders were but temporary they have postponed purchasing with a firm belief that they would soon see prices on a lower level. They have been disappointed in this respect, and now the urgency for the tools which they require is becoming more marked and they are beginning to squirm. They are still holding off, but it is the opinion that they will soon be forced into the market. There is no indication of an immediate slump. At least present conditions will exist until lake traffic closes. Prices are rather on the incline than otherwise, and as long as the builders have sufficient work on hand to warrant the continuance of this condition there will be no appreciable falling off in the market. The large Western railroads have not ordered as yet, and these, too, will soon be forced into the market. This will certainly not have a bad effect on conditions. As the present boom begins with the producers of materials, the closing of the Great Lakes will tend to enhance the first cost of materials. This cannot affect machinery prices otherwise than to raise them. Taking everything into consideration the slump is a long ways off."

Purchases for the equipment of the new shop which is being erected at Kingsland Point, Tarrytown, N. Y., by the Mobile Company of America are about concluded. The entire lot, it is said, approximates about \$150,000 in value. The list embraces tools of all the leading makes. They were ordered through Hill, Clarke & Co. and Chandler & Farquhar of Boston, Pratt & Whitney of Hartford and Brown & Sharpe of Providence.

The Mobile Company of America and the Locomobile Company of America were originally one concern, owned by John Brisben Walker, proprietor of the *Cosmopolitan Magazine*, and A. L. Barber, president of the Barber Asphalt Paving Company. Mr. Walker purchased the patent covering the Stanley motor and sold one-half interest to Mr. Barber for \$250,000. He also sold the Newton, Mass., factory to Mr. Barber for \$80,000. It was agreed that each party should build an equal number of the Stanley carriages and to further this plan two companies were formed. These two companies, although controlled by the same interests, were to operate independently. Mr. Barber called his company the Locomobile Company of America, and in addition to the Newton plant purchased the Humber bicycle plant at Westboro, Mass. Mr. Walker called his concern the Mobile Company of America and purchased Kingsland Point, where he is now erecting a three-story factory, 476 x 47 feet, and a power house, 77 x 78 feet. This is the plant that is soon to be equipped with the machinery which Mr. Walker has just purchased. The plant will have a capacity of 20 carriages per day. Mr. Barber is now refitting the Humber plant and adding to the Newton plant. His offices are at 11 Broadway. Mr. Walker's New York offices are located in the *Times* Building, room 108.

An entire new automobile plant is being erected at Steinway, L. I., by the Daimler Mfg. Company. A large addition is also being built to the marine plant owned by this company and also located at Steinway. Although the buildings are being erected details for their equipment have not as yet been arranged. The officers of the company are now in Europe securing the latest working drawings and blue prints of the Daimler motor especially in connection with the automobile. The Daimler Mfg. Company have exclusive rights for the manufacture of the Daimler motor in the United States and Canada. Through a reorganization of the Daimler Mfg. Company recently a syndicate, composed of Wm. L. Elkins, P. H. B. Widener, George W. Elkins, George D. Widener, Syd-

ney Tyler, Michael Ehret and Arthur Kitson, acquired control. This syndicate inaugurated the Daimler boom which is scheduled to soon take place in this country. It is intended, when the Steinway plants are completed, to build motor wagons for heavy freight service, such as brewery wagons, express wagons, coal wagons, &c., as well as carriages, launches and stationary engines. It is said that there are at present about 10,000 Daimler automobiles in daily operation in Europe. As soon as the officers of the company return to this country with the latest designs and adaptations of the Daimler motor active operations will be commenced for the equipment of the factories, which will at that time be completed.

Westinghouse, Church, Kerr & Co. of 26 Cortlandt street have just been appointed contracting engineers and architects for the Toledo, Fremont & Norwalk Electric Railroad Company of Toledo, Ohio. The road will be 60 miles long, running from Toledo through Woodville, Fremont, Clyde, Bellevue and Monroeville to Norwalk. Westinghouse, Church, Kerr & Co. will contract for the building of the entire road and the building and equipment of the power station. There will be a single central power house and rotary sub-stations. This will be the second longest electric road in this country. The longest is 65 miles in length. It is the Rapid Railway of Detroit, now being completed by Westinghouse, Church, Kerr & Co. This concern have just received an order for a plant of 12 gas engines, aggregating 3000 horse-power, for the Iola Portland Cement Company of Iola, Kan. They also received an order for equipping the new axle plant of the Carnegie Steel Company, Limited, with a 650 horse-power gas engine. This is the third engine of this size sold by this company. It is the largest size gas engine built.

J. B. Costilo Machine Works, Hudson avenue and Concord street, Brooklyn, N. Y., report a large and growing demand for their milling machines, both at home and abroad. They state that they have largely increased their facilities for the manufacture of these machines and their wheel power screw machines.

We are informed that the Planters Mfg. Company of Lake Mary, Fla., will erect a 100 x 300 foot refrigerating and dry kiln plant. A 100 horse-power plant will also be erected. F. G. Perkins is president of the company, who are said to have a capital of \$100,000. The company are producers of starches, dextrines, farina and tapioca.

American Engine to Go Abroad.

Advices from Glasgow state that the City Corporation has practically decided to accept the action of the Tramway Committee and award the contract for supplying the engines to be used for the generation of the electrical power for the city to the E. P. Allis Company of Milwaukee. It is stated that the American bid was the highest received, but that the English competitors could not approach them in the matter of delivery. The order consists of two vertical compound condensing engines. The cost is placed at \$280,000.

Henry M. Flagler, the Standard Oil magnate, and associated capitalists are reported to be buying up all the property on the south side of the St. John's River, between Jacksonville and Mayport, Fla., a distance of 20 miles, and also the lands fronting on the Atlantic Ocean as far south as Pablo Beach, as well as the Jacksonville & Atlantic Railroad, with the view of improving the port of Jacksonville and making it a center of the export carrying trade of the West Indies and South America.

The record of new incorporations of large companies in the month of August showed a material decrease from that of July. The aggregate capitalization of companies with \$1,000,000 capital or more last month amounted to a little over \$250,000,000, or \$90,000,000 less than the total for July. New Jersey, as usual, took the lion's share of new incorporations, but the list for that State was just one-half in amount that recorded in the previous month—\$141,000,000 in August, against \$282,000,000 in July.

The exports of manufactured products from the United States in July were valued at \$29,982,034, as compared with \$25,983,116 in July, 1898. In comparison with the total exports, however, manufactures amounted to only 32.18 per cent. in July of this year, while in the corresponding month of 1898 they formed 36.47 per cent. of the whole. This is attributable to the large increase in the exportation of agricultural products in July, 1899, over that of July, 1898. For the seven months of 1899, ending with July, our exports of manufactures were valued at \$211,975,904, or 31.46 per cent. of the whole, while in the same period of 1898 they were valued at \$178,334,867, or 26.19 per cent. of the whole exports.

Teaching Engineering.

A paper by Prof. C. Frank Allen of the Massachusetts Institute of Technology before the Society for the Promotion of Engineering Education was discussed in part as follows by Prof. D. C. Jackson of the University of Wisconsin:

Such men as Faraday were the early great engineers, and their far-sightedness is illustrated in the present consummation of that remark of Joule, "I can scarcely doubt that electromagnetism will eventually be substituted for steam in propelling machinery." What proportion of the college bred engineer apprentices of this day are inoculated with the same broad spirit of far-sightedness we cannot tell, but I fear the proportion would grieve us were it known. The force of our college training is often broken by too much bending toward the applicability of the methods of teaching and the subjects taught to the immediate earning of dollars by the graduates, while the effect upon their later development into men of power is forgotten.

The abstract of Professor Allen's paper shows so just an appreciation of various requirements in engineering college courses that I overcome a hesitancy to enter into a discussion where there may justly be many conflicting opinions. To my mind, an information course, so-called, must be superficial and so be injurious to a college student. "It is not book learning young men need, nor instruction about this or that," so much as, "a stiffening of the vertebrae which will cause them to be loyal to a trust, to act promptly, concentrate their energies, do the thing required," and do it of their own initiative, using their own powers of thought. The student must be inspired and taught to work for himself in the manner used by George Stephenson when instructing his assistants and pupils. "Learn for yourselves," said he, "think for yourselves, make yourselves masters of principle, persevere, be industrious, and there is then no fear of your success." To my mind the criterion of success of a college course in engineering which is frequently applied especially in the West—that is, a judgment based upon the rate of pay received by the men immediately upon leaving college—is entirely erroneous, though the criterion seems to be indorsed at some of our schools of engineering.

Four years is but a small part of Faraday's period required "to make a man" in the physical sciences, and in so short a period only the foundations for our man can be laid. The college course in engineering should be bent toward such a complete and true presentation of thorough science and truth that the student is incited to permanently secure it for himself and make it fully his own, and it may then be put to valuable use in future practice. I should gladly be judged of the success of my teaching by the success attained by my students after years of practice, but let no judgment be passed upon the basis of wages received during the year after graduation.

The engineering course should not be too formal or limited to the didactic methods used of old in the instruction in classics. Professor Tait speaks the views of the scientist when he says: "It is better to have a rough climb (even cutting one's steps here and there) than to ascend the dreary monotony of a marble staircase or a well made ladder. Royal roads to knowledge reach only the particular locality aimed at—and there are no views by the way. It is not on them that pioneers are trained for the exploration of unknown regions."

To the engineering student in college the laboratory is of inestimable value. In it he can learn the true relations between science pure and science applied. He can learn to reason true from cause to effect. His mind can be developed less trammelled than in the class room, and the inspiration to independent thought may be more readily given deep root. "Every branch of engineering is becoming rooted more firmly to the scientific bedrock upon which it rests," and the engineer must be a man of scientific instincts, scientific thought and scientific methods, besides being a man of business. He must have learned with the scientist that the price of success is constant, concentrated effort. All this can be taught better in the laboratory than in the class room. Said Mr. Hart in the *Atlantic Monthly* not long since, "Genius is nine parts character. The prize is to him who dares, not merely to him who can." In the laboratory the student may be inspired to dare.

I would have at least one-half of the time consumed by students in the study of applied science or engineering spent in properly supervised laboratories. The work in the laboratories should be strictly of a scientific character.

In this nation the industrial pursuits are engineering pursuits, and in the present juncture—after the laws of mechanics—the laws of electricity seem to be of the most importance to the industrial engineer. I would therefore give great weight and strength to the electrical

laboratories. While the subjects particularly taught are not of so much importance as the effect upon the student's powers—"Victory is for the people who see things as they are without illusion—who do not take phrases for facts"—the well planned laboratory courses in applied electricity serve excellently to give that clear sight of "things as they are" which is essential to success.

Strengthening the "Shamrock" for the Atlantic Voyage.

At the present time the following, from the *Engineer* of London, is of interest. As our readers well know, the "Shamrock" is now on this side of the Atlantic preparing for the races next month:

The America's cup challenger, the "Shamrock," whose design, construction and advent into the yachting arena have been followed and watched with such keen and widespread interest, has now ended her trial spins on this side, and doffed her racing spars and rig in order to be equipped with the rig in which she is to be sent across the Atlantic. This she has done at Gourock, on the Clyde, and a Clyde firm, Scott & Co., Greenock, have undertaken to prepare her for the voyage. Many yachting authorities who have examined the vessel and witnessed her behavior in the trial races are agreed that the worst chance which she has to face is the probability of meeting a gale during her passage across the western ocean. The conditions of the contest stipulate that the challenging yacht must sail across on her own bottom. She may assume any rig, and she may also proceed under tow, but she must be floated across. This condition has hampered the designers of previous challengers in meeting the Americans on their own ground of lightness in construction; but in designing the "Shamrock," William Fyfe has allowed himself a freer hand, apparently, than his predecessors in producing a boat which is the acme of lightness combined with all the strength necessary for racing purposes. The provision that has to be made for meeting the risks and contingencies of a voyage across the ocean is therefore in her case rendered additionally important and interesting to naval architects as well as to enthusiastic yachting men.

Although her shell, under body, top sides, and deck consist of metal plating—the composition of which, in the language of her owner, "is a mystery . . . an extraordinary light metal, with a polish as fine as glass"—which is for the most part only 3-16 inch thick, there are stays and ties behind this fragile shell so distributed as efficiently to brace her against any great strains brought upon her when the immense area of her canvas fills to a breeze. Over and above this provision against racing contingencies, special measures have been taken to prepare her for possible heavy weather on the journey across, and to ensure, as far as possible, that she will arrive on the other side in the same fit condition as she is in here. Every detail of these measures was settled before ever the construction of the yacht was proceeded with, and plans of this, as complete almost as those from which the hull was built, are now being worked from by Scott & Co.

This consists mainly of a system of screw braces and trusses specially designed and prepared. The interior of the hull will be strapped from end to end with heavy stay battens, and screw trusses will then be led from side to side and screwed out until they bear hard against the stays. Similarly, screw braces will be led from the bilges to the deck, and when all are screwed up the hull will be secured against all chance of working or giving in any direction. To protect the light-metal deck from bulging or straining under impact of any Atlantic rollers that might get aboard, a heavy sheathing of wood plank is being fitted, bolted to the supports below. From these and other preparations it would appear that, unless the "Shamrock" is exceptionally unfortunate, she may be expected to arrive at the scene of action in such perfect condition that the refitting of her again for racing purposes will be a straightforward and simple matter.

The "Shamrock" will make the voyage across, as the "Valkyries" did, under ketch rig, having two masts so placed as to constitute this style of rig—a compromise between a schooner and a yawl. The mainmast will be carried forward in the step belonging to the racing mast, and a big mizzenmast will be stepped well aft over the rim of the counter. These masts, with the other spars, such as booms and gaffs, are of wood of very large proportions for an ocean rig, and of themselves afford a good idea of the designer's belief in the sail-carrying power of the "Shamrock." All the spars involved in her jury, or ketch, rig, have been prepared at Fairlie, while the gear and rigging have been sent north from Millwall. It is expected that the yacht will be ready for entering upon her voyage across some day early next week.

The Great Wall of China.

Engineering states that the Great Wall of China is about to be razed. It is somewhat remarkable that when China is on the eve of the introduction of Western methods of engineering she should be threatened with the demolition of the most important engineering work she possesses—namely, the Great Wall, which, stretching from the sea at the 120th degree of longitude and fringing the northern frontier of the empire to the 100th degree, stands as a monument to one of the greatest rulers China ever had. Erected two hundred years before Christ, for the purpose of keeping back the warlike Tartars, the Great Wall of China is older by three centuries and a half than the walls of Hadrian and Antonine in our own country. These latter were insignificant in comparison with the Chinese work, neither of them being nearly 100 miles in length, while the engineering feat of the Emperor Shih Hwangti extends from the shores of the Gulf of Pe-chi-li to the remote inland Chia-yu barrier gate, a distance of 1200 miles. The British walls have almost disappeared, being only traceable here and there by great mounds or shapeless fragments of masonry, except at a few points which owe their preservation to the care of the archaeologist. The hand of time, aided sometimes by the hands of the utilitarian builder, who has found some parts of the walls convenient quarries, has slowly but surely removed almost the whole of the work of the Roman engineers. Shih Hwangti did his work in a most substantial manner, for his wall remains to-day in almost perfect condition. The conservative tendencies of the Chinese saved it from the ravages of the builder, and it has stood for centuries, not only as a wonderful monument of human industry and patience, but also a symbol of the immobility of Chinese civilization. The wall proved to be of no avail to keep off the invader; and probably its demolition may be intended to show, now that China has made a start in Western civilization, she means to make up for her stationary condition during the past 2000 years. It is stated, says our contemporary, that an American engineer is *en route* to China on behalf of a syndicate of Chicago millionaires, on whose behalf he is to take a share in the expected big contract to be given out by the Chinese Government for the demolition of the wall. It is further stated that one French, two British and three German firms are also bidding for the work, payment for which is to be ample in the shape of rich concessions; so that out of the ruins of the wall there may arise great engineering and industrial works which may change the whole future of China.

The Art Idea in Builders' Hardware.

THE constantly growing demand for the finer goods of Builders' Hardware emphasizes the necessity, on part of both salesman and retailer, of a correct understanding and appreciation of the art idea in Builders' Hardware. It is quite sure that a man will sell best those things that he understands, hence it is unfortunate that Builders' Hardware is too often looked upon as a complex line whose comprehension can only be grasped by the trained specialist.

AN IMPORTANT LINE.—Aside from the great relative importance which this line occupies in the Hardware field, it invites careful study because it is at once the most interesting, the most logical and the most comprehensive of all the lines which make up the Hardware business.

That its presentation is often badly done and clouded with ignorance and bad taste only makes more necessary the correct understanding of its nature and its use. Art Hardware has three essential and distinguishing features: Mechanical excellence, artistic correctness, appropriateness of finish.

MECHANICAL EXCELLENCE.—The discussion of mechanical excellence is one that we shall necessarily leave to the various manufacturers, but it can always be known by the essential qualities of security, simplicity of design, fitness to purpose intended and economy of operation. Any departure from these principles is inherently wrong, no matter what may be the temporary gain in cheapness and popularity.

For instance, a cylinder Lock that has not its weak points protected has lost the prime idea of security, which is its principal claim to favor. Again, many of the various patent spindle fastenings to Knobs are utterly impracticable because of their cost and difficulty of applica-

tion. Then many Butts, popular because cheap, are practically worthless, because they are not really reversible and will not stand wear. Fortunately these mistakes are usually cured by time and experience.

ARTISTIC CORRECTNESS.—Builders' Hardware nowadays is equally a matter of ornament as well as of utility, hence artistic correctness bears equal value with mechanical excellence. It must be remembered that Hardware is not the principal furnishing of a house and that its functions are to afford security and to be in harmony with the architecture and general design of the building. Architecture in its broad sense is an expression of the prevailing thought of the age, tempered necessarily by physical conditions.

Art Hardware, in its turn, is an attempt to register in miniature a faithful copy of the various schools of architecture and ornamentation as far as the limited conditions imposed by space and utility will permit. This reduces the matter to a simple proposition in which artistic knowledge, good taste and mechanical skill are the determining elements.

We have passed the initial stage when mere scroll work was acceptable because well done. Every ornamentation in art Hardware must have its own meaning and be a correct representation of a certain school if it hopes to have life. This is why it is that the leaders in this movement have been successful, while the mere imitators have seen the public outgrow those designs which were not correctly done and were mere conglomerate drawings which were well enough as a pattern for a fancy rug or carpet but were not suited for a piece of Hardware.

It is true that some composite designs combining fragments of various ornamentations have been and continue to be well liked, but at best their popularity is but ephemeral and they are only suited to the cheaper grades of Hardware.

APPROPRIATENESS.—The correct application of the best expressions in the way of art Hardware is purely a question of harmonious adjustment. A house built in Colonial style demands Hardware that shall embody in brief the simplicity, beauty and freedom of treatment of Colonial architecture. It is manifestly inappropriate to trim such a house with Hardware of the ornate Empire or Renaissance schools.

DESIGN.—These are matters of progressive development and education, and a study of the characteristics of the various schools of ornamentation soon teaches the correct application in each instance. The matter of nomenclature is very simple and logical. The name of the ornamentation is selected geographically to denote the school of the ornamentations. Thus "Ephesus" is an ornamentation of the Greek school, "Jamestown" of the Colonial school, and so on.

FINISHES.—The matter of finishes is one of a combination of harmony and contrast. There can be no absolute rules concerning them beyond those of the usual canons of good taste. The finish must be in harmony with the general architecture and furnishings of the room, yet in a mild contrast to the wood upon which the Hardware is placed. In fact the finish occupies very much the position of the trimmings of a costume.

It is impossible to prescribe anything more definite, since the standard of taste in these matters, as in all others, is constantly changing. The question of sentiment also plays quite a large part, as is illustrated by the present use of glass Knobs, their cleanly appearance and simplicity making them peculiarly appropriate for bed chambers. Atmospheric effects must always receive careful consideration because of the comparative evanescence of all the oxide finishes.

THE SALESMAN'S KNOWLEDGE.—The practical conclusion is that the salesman or retailer who grasps the simple and logical principles which underlie the idea of art Hardware will reap the reward of increased sales, since he alone can intelligently present its beauties to his customer.

HARDWARE.

Condition of Trade.

SEPTEMBER opens with an excellent business in progress, and the prospect of an active and profitable fall season. The demand upon the manufacturers continues large and in some lines it is of such volume as to make heavy drafts upon their production, involving in several branches delays in shipment. In some departments of Shelf and general goods there is perhaps not quite so heavy a pressure on the manufacturers, who have taken advantage of the relatively quiet summer months and replenished their stocks and put the factories in shape for the most efficient work. There continues to be from many jobbers a call for goods, and rush orders to complete assortments or meet pressing needs are frequent. Some contracting is being done for next season, as there is a growing conviction that the slump in prices will not come as soon as was thought likely a few months ago. The tone of the market is such as to give great firmness to Hardware products generally and to necessitate important advances on heavy goods, while on the lighter articles in which labor is an important element of the cost its influence is also felt, but to a less degree. Manufacturers are experiencing some trouble in regard to labor, in some cases finding it difficult to obtain workmen and in others being obliged to pay increased wages. These influences with the active demand for goods necessitate advances in prices, a matter in which most of them are acting very conservatively, some making advances with evident reluctance, anticipating a reaction by and by and a return to something like the former level of prices. The difficulty in obtaining raw material and the uncertainty as to the cost makes the position of the manufacturer a difficult one and much care and good management are needed to avoid the dangers of the situation and take due advantage of the present favorable condition of things. A great many goods are still being shipped on old contracts, putting the jobbers in an excellent position to obtain broad margins of profit, of which they are generally taking advantage. There is complaint that some manufacturers are giving preference to late orders at present high prices to the neglect of orders on their books at former low prices. From the retail trade in general reports are encouraging, and there is little doubt that the country as a whole is in an exceptionally prosperous condition. The retail merchants, however, are not able as yet to reap what they regard as their share of the advantage of the present improved conditions, and some of them find it difficult to obtain higher prices from the consumers corresponding to the increased cost of the goods.

Chicago.

(By Telegraph.)

The demand for Shelf Hardware is exceedingly heavy, but is still running remarkably to summer goods. This is due to the excessively hot weather latterly prevailing throughout the West, which for the time being

has relegated the question of fall goods to the rear. Some advance orders are, of course, being taken for fall shipment, but the great volume of business is still confined to such goods as have been in most demand during July and August. The movement in Builders' Hardware and all kinds of goods entering into the construction of buildings keeps up to surprising proportions, showing that great activity prevails in the building trade. The corn crop is now practically safe throughout the West, and it is pretty definitely known that it is the largest recorded, surpassing even the bumper crops of agricultural fame. This forms the basis of the most sanguine expectations of a prosperous year to come. A meeting of manufacturers of Barn Door Hangers was held here last week, the result of which was an agreement to advance prices 10 per cent. on Hangers and 20 per cent. on Rail. Another advance is expected at an early day. Poultry Netting has also been advanced by manufacturers about 20 per cent., which is rather an unusual proceeding for the time of year, but has probably been done to forestall the placing of contracts for next spring at prices regarded as too low, considering the cost of raw material. The demand for Heavy Hardware is not only large but extraordinarily large, yet jobbers are looking forward to even greater activity with the opening of fall business. Burden Horseshoes have just been advanced 20 cents per keg, which corresponds with advances previously made by other manufacturers. The only complaint now made by jobbers of Heavy Hardware is the inability to receive goods from manufacturers fast enough to supply their customers.

St. Louis.

(By Telegraph.)

Heavy shipments are going forward to the trade, and the splendid business for the season continues. Builders' Hardware shows no falling off in sales. The constantly increasing price of raw material points to new advances on finished goods. Pig Iron which sold in this market May 29 at \$16.25 is quoted to-day at \$21.25, an advance of \$5 per ton. Bar Iron three months ago was placed at \$1.75 per 100 pounds in carloads; to-day it is \$2.20, or \$9 per ton difference. These facts must naturally be taken account of by makers of all lines of Hardware and metal goods. Furthermore, it justifies the retailers in promptly marking up goods as soon as advances are received. Harrow Teeth, although somewhat out of season, have been subject to new quotations. About 15 per cent. has been added to Scythes, but this does not establish next season's prices. There is a big demand for Sheet Steel of gauges suitable for Stove Pipes. Scale Beams are also in good movement. An advance of 15 cents per keg took effect September 1 on Wire Nails. A most extensive raise has been applied to Painted Barb Wire, which now carries an advance of 50 cents per 100 pounds. A new differential of 15 cents has been established between Painted Barb and Galvanized Barb Wire, which may stimulate the sales for the latter. Galvanized formerly cost 50 cents more than Painted. The Heavy Hardware trade has difficulty in filling its stock of Merchant Iron and Steel, and is under necessity of discriminating between supplying wants of new customers and long time patrons.

Baltimore.

CARLIN & FULTON.—While the tendency of advanced prices at first is to restrict purchases to absolute requirements, business compares in the aggregate very favorably

with last year. This may be partly accounted for by the speculative interest in an advancing market. After the highest level shall have been reached then the sales will represent more fully the actual demand of the country for consumption. The activity which marks the manufacturing centers and the large cities generally does not extend as yet to the agricultural sections, and until the season's crops have been marketed and the money resulting therefrom put into general circulation rigid economy will be practiced, especially with goods at what the farmer considers prices out of proportion when compared with his wheat and cotton.

The changes in the market are happening so rapidly that a quotation of to-day is hardly good long enough for consideration, and the buyer must be quick if he desires to take advantage of a tempting offer. The daily press has kept the public well informed as to the extraordinary conditions of the Iron, Steel and Hardware market, and where raw material has increased in value more than 100 per cent. the man who reads needs little explanation where advances in manufactured goods are but 50 per cent. in many cases.

We look for a steady—in fact, a better—demand for goods during the balance of the season, and should cotton take an upward turn we would see a decided improvement.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Since our last a great change has come over the spirit of our dreams. Usually in this territory, between the first week in July and the first week in September, hardly a drop of rain falls. For the past two weeks at intervals the rain has been so heavy that harvest has been entirely suspended. Grain in shock undoubtedly has been greatly damaged as well as that still standing. Little threshing so far has been done. No wonder is it that trade shows a falling off, for until the full loss is known few wish to buy more than their immediate requirements. We notice more frequently in our various lines the effect the high prices are having in curtailing consumption. Hardly a day passes that orders are not cut down or consumer decides to postpone proposed work. Either of above reasons is sufficient in itself to check a good demand. Combined they are sure to.

Collections also show the effect of our uncertain prospects. A few weeks of sunshine and seasonable weather, however, will yet help us to recover much of our lost ground.

Louisville.

W. B. BELKNAP & CO.—The market still holds its own in first-class shape. There is a demand for goods in larger quantities, indicating a general consumption of household and farm goods and Mechanics' Tools. Bar Iron and Bar Steel too, are moving rapidly, and the mills seem to have hard work to keep up with their orders. This is, no doubt, stimulated by the continued advances and promises of still further advances.

There is still an element of speculation in buying, which will of course disappear as soon as people begin to believe that prices are near the top or that the high prices have cut off consumption or overstimulated production, as they surely must sooner or later in the operation of natural forces.

Cleveland.

THE W. BINGHAM COMPANY.—August sales close two months of the best summer business in the history of the trade. The demand has been for General Hardware and the orders have been for larger quantities than usual. The outlook for the balance of this year is excellent. The present drought, however, is having some effect on immediate sales. Prices continue to advance and the end is not yet in sight. New prices on Nails and Wire that went into effect September 1, although very high compared with a year or two ago, are still low when put in comparison with prices ruling 15 years ago. We can see nothing at present but what points to higher prices and good trade for some time to come.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—The Fall season is now at hand and business men are looking forward with confidence to a very active period in all departments.

There appears to be plenty of money in general circulation, and as business enterprises of all kinds have been fairly remunerative a heavy demand for all kinds of merchandise is anticipated. Labor, too, has been well employed and the situation indicates that all classes will be in such a satisfactory condition financially that to supply the wants of the multitude heavy stocks of goods will have to be carried.

The corn crop is abundantly bountiful this year. Cattle, hogs and stock of all kinds are bringing good prices, so that the business situation, as a whole, may be characterized as entirely satisfactory.

Notes on Prices.

Wire Nails.—On September 1 the American Steel & Wire Company advanced the price of Wire Nails 15 cents per keg. An advance about the first of the month had not been unlooked for by a portion of the trade. Quotations are as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots.....	\$2.65
To " in less than carload lots.....	2.67½
To retailers in carload lots.....	2.80
To " in less than carload lots.....	2.90

New York.—The demand for Wire Nails for this territory continues in fair volume. The advance of 15 cents per keg, as noted above, results in the following quotations:

To retailers, carloads on dock.....	\$2.95
To " less than carloads on dock.....	\$3.00 to 3.10
Small lots from store.....	3.10 to 3.15

Chicago, by Telegraph.—The expected advance in Wire Nails was made on September 1, but was not as large as had been anticipated, being only 15 cents per keg. This makes the factory price of single carload lots equivalent to \$2.95, Chicago. The trade are looking for a still further advance at an early day. Manufacturers report a heavy business in progress. The fall trade in Wire Nails is now in full swing and is already taxing manufacturers' facilities. Stocks are low, as shown by the fact that after sending specifications by mail buyers frequently wire to know when they can rely upon receiving shipments. Jobbers report a good demand and quote small lots from stock at \$3.05.

St. Louis, by Telegraph.—An advance took place September 1, but not to the extent expected. Fifteen cents per keg is the increase, and while sales may again be checked it cannot be for long. Single carloads to retailers are quoted at \$3, base, St. Louis, and smaller lots from stock at \$3.10, base.

Pittsburgh.—Under date of September 1 the American Steel & Wire Company issued an announcement to the trade stating that on account of the continued advances in prices of raw material they have advanced prices 15 cents per 100 pounds, taking effect on that date. Prices of Wire Nails are now as follows: To jobbers in carload lots, \$2.65; to jobbers in less than carload lots, \$2.67½; to retailers in carload lots, \$2.80; to retailers in less than carload lots, \$2.90, all f.o.b. Pittsburgh, terms 30 days net, to which freight to destination is added. We are advised that the demand for Wire Nails is exceedingly heavy and the American Steel & Wire Company are considerably behind in shipments, in some cases not promising delivery of orders already booked before November. The circular referred to above states further that on account of the rapidly advancing market on raw materials further advances in Wire Nails will likely be made at an early date.

Cut Nails.—The Cut Nail market has shown no change since the advance of 25 cents per keg made by the Eastern Cut Nail manufacturers August 29. Trouble is still experienced in obtaining prompt shipments from factory. The following are manufacturers' prices, f.o.b. Pittsburgh:

To jobbers in carload lots.....	\$2.40
To " in less than carload lots.....	2.45
To retailers in carload lots.....	2.50
To " in less than carload lots.....	2.65

New York.—The local demand for Cut Nails shows a slight increase over that of the previous two or three weeks. Quotations for single carloads on dock continue to be \$2.55 and for small lots from store \$2.75. The market is still characterized by some irregularity and some jobbers are selling small lots from store at \$2.65 to \$2.70.

Chicago, by Telegraph.—The volume of business is about the same as previously reported and jobbers quote small lots at \$2.40 to \$2.50.

St. Louis, by Telegraph.—Manufacturers seem to have all the trade they care to handle. The difficulty of getting raw material promptly is met with in the face of growing popularity of Iron Nails. Jobbers now quote \$2.60, base.

Pittsburgh.—We can report a very heavy demand for Cut Nails, particularly for certain sizes, in which there is a shortage in supply. The recent advance of 25 cents made by the manufacturers is being firmly held. We quote: \$2.40 in carload lots, and \$2.50 in less than carload lots, f.o.b. Pittsburgh.

Barb Wire.—An advance was announced by the American Steel & Wire Company September 1 of 50 cents per 100 pounds in the price of Painted Barb Wire and 15 cents per 100 advance for Galvanized Barb Wire. These advances result in a differential between Painted and Galvanized Wire of 15 cents per 100 pounds instead of 50 cents as formerly. It is understood that the unsatisfactory results obtained by the usual method of painting Barb Wire have led the manufacturers to adopt a more thorough system at an increased cost. It is probable that the relatively high price of Painted Wire may force Galvanized Wire into more general use. Present quotations, f.o.b. Pittsburgh, net cash 30 days, are as follows:

To jobbers in carload lots, Painted.....	\$3.10
" " Galvanized.....	3.25
" in less than carload lots, Painted.....	3.12½
" " Galvanized.....	3.27½
To retailers in carload lots, Painted.....	3.26
" " Galvanized.....	3.40
" in less than carload lots, Painted.....	3.35
" " Galvanized.....	3.50

Chicago, by Telegraph.—The manufacturers made quite a notable advance on September 1. They marked up prices 15 cents per 100 pounds on Plain Annealed and on Galvanized Barb Wire, but made the advance 50 cents per 100 pounds on Painted Barb Wire. They assign no reason for this action, but it is plainly to be seen that it will probably have the effect of checking the use of Painted and correspondingly increase the use of Galvanized. Manufacturers report a large business in Plain Wire and also state that the fall demand for Barb Wire is beginning two or three weeks earlier than usual, but that as yet it is not of large volume. Chicago prices are now as follows: Single carload lots of Plain Annealed Wire, \$2.80; Painted Barb Wire, \$3.40; Galvanized Barb Wire, \$3.55, with 10 cents per 100 pounds additional for small lots.

St. Louis, by Telegraph.—Fifty cents advance has taken place in Painted Barb Wire and prices to day are \$3.45 in single carloads to retailers. Jobbers quote \$3.55 for smaller quantities. A radical reduction has been made between Painted and Galvanized. Formerly 50 cents more was asked for Galvanized. The present difference of only 15 cents should attract considerable attention to Galvanized on the part of consumers and a stimulated sale is likely to follow.

Pittsburgh.—The American Steel & Wire Company have advanced prices on Galvanized Barb Wire \$3 a ton and on Painted Barb Wire \$10 a ton, making a differential of only 15 cents between Galvanized and Painted instead of 50 cents as heretofore. There is very little doing in Galvanized Barb, but for Painted there has been a good demand for some time, particularly in the Western States. It is probable that owing to the slight difference now ex-

isting between prices of Galvanized and Painted Barb Wire many consumers of the latter will now use the former. We quote at \$3.10 for Painted in carload lots to jobbers and \$3.35 in less than carload lots, with an advance of 15 cents for Galvanized, all f.o.b. Pittsburgh; terms net 30 days, freight to destination added.

Smooth Wire.—Smooth Wire has also been advanced 15 cents per 100 pounds, and the extras for galvanizing remain the same as those which have ruled since April 17, 1899. Quotations are as follows, f.o.b. Pittsburgh, 30 days net cash:

To jobbers in carload lots.....	\$2.50
To " in less than carload lots.....	2.52½
To retailers in carload lots.....	2.65
To " in less than carload lots.....	2.75

Pittsburgh.—There is only a fair demand, except for Hay Baling Wire, for which some very large orders are being placed. Prices have advanced \$3 a ton, taking effect September 1, and we quote: To jobbers in carload lots, \$2.50; to jobbers in less than carload lots, \$2.52½; to retailers in carload lots, \$2.65; to retailers in less than carload lots, \$2.75, all f.o.b. Pittsburgh; terms net 30 days. The charge for Galvanizing is 50 cents on sizes from Nos 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, \$1.10.

Strap and T Hinges and Wrought Butts.—Under date August 30 the manufacturers of Strap and T Hinges, Wrought Butts, &c., announce advanced base discounts, which they refer to as making the price about 10 per cent. higher than heretofore. The quotations on these goods are represented by the following discounts of the Stanley Works, New Britain, Conn., and 79 Chambers street, New York, extras being given as before:

	Discount.
	Per cent.
Light Strap Hinges, Nos. 900 and 916.....	.66⅔
Heavy " " No. 902.....	.70
" " Corrugated, No. 935.....	.70
Light T Hinges, No. 904.....	.50 and 10
Heavy T " " 906.....	.60 and 10
Extra Heavy T Hinges, No. 908.....	.66⅔
" " Corrugated, No. 937.....	.66⅔
Hinge Hasps, Nos. 912, 913, 914, 918, 920.....	.45
Long Chest Hinges, No. 910.....	.45
Bright Butts, Nos. 800, 802, 804, 806, 808, 810, 814, 816, 818, 820, 854.....	.60 and 10
Bright Butts, Nos. 826, 828, 829, 830, 832, 834, 836, 838, 840, 842, 843, 844, 845, 846, 848.....	.66⅔
Bright Butts Nos. 822, 822½, 823, 823½.....	.70 and 10
Japanned Butts, Nos. 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 726, 727, 728, 729, 730, 731.....	.60

The Perfection Rain Water Filter, of which a description is given in this issue, as put on the market by J. L. Perkins & Co., 241 Lake street, Chicago, Ill., is sold from the following list, which is subject to a discount to the trade of 40 per cent.:

	Tin.	Per dozen.
2-inch.....		\$11.50
3 " ".....		12.00
4 " ".....		14.00
5 " ".....		20.00
6 " ".....		26.00

Galvanized Iron.

2-inch.....	\$14.50
3 " ".....	15.00
4 " ".....	17.50
5 " ".....	24.00
6 " ".....	30.00

Sheet Copper.—An erroneous statement appeared in our last issue regarding the base price of Sheet Copper. The change made by the manufacturers on August 22 consisted of ½ cent advance in the price of tinning, the base price remaining the same as that adopted May 2.

Axes.—The Axe market is decidedly firm and materially higher prices than prevailed a few months ago are now current. The manufacturers' prices in round lots are represented by the quotation of \$5 for first-quality Axes. Some complaint is made that orders booked at former low prices are not in all cases given the attention they deserve.

Shovels and Spades.—A meeting of the Shovel Association was appointed for this week, but several of the prominent members have been prevented thus far from

attending, and it is not unlikely that action on the important matters coming before the association will be deferred. The general impression is that a further advance in prices will be made.

Horseshoes.—As per a dispatch in another column, an advance in the price of Burden's Horseshoes is announced, which will doubtless have an excellent effect on the market in this line. It is thought probable that other manufacturers who are now holding to the price of \$3.35 at factory will also make their price \$3.40.

Glass.—No agreement has been reached between the workers and the present American Glass Company regarding wages. It is reported that the combined factories do not wish to start up before November 1 and that the independent factories refused to allow the combine to fix the time of starting for them. The latter desire to start as soon after September 15 as possible. Under these circumstances it does not seem as if the new combination Window Glass company scheme had much life left in it, but it may be revived in some form later on. Eastern jobbers quote 80 and 15 per cent. discount on American Window Glass. Some Chicago jobbers are quoting 80 and 20 and 2½ per cent. discount. These are both for less than car lots. The American Glass Company's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more.....	85	85	.....	85
Carloads.....	80 & 15	80 & 15	80 & 20	80 & 15
3000 boxes or more.....	80 & 20	80 & 20	.....	80 & 2½
1000 boxes or more.....	.....	.....	85	.....

These prices are subject to freight allowance.

Paints and Colors.—**Leads.**—The market for White Lead in Oil continues strong at the recent advance. Grinders experience some trouble in procuring supplies of raw material and are busy filling orders. Quotations for White Lead in Oil are as follows: In lots of less than 500 pounds, 6½ cents; in lots of 500 pounds and over, 6 cents.

Oils.—**Linseed Oil.**—Nothing unusual has transpired in the Linseed Oil market during the past week. Spot Oil is not in abundance, as contracts are being drawn upon freely by dealers and consumers. The advance in price noticed last week is being firmly maintained. There is some new Seed in the market, but not enough to affect the price of Oil, which is as follows: City Raw, in lots of less than five barrels, 45 cents per gallon; five barrels or more, 44 cents per gallon. State and Western Oils are quoted at 42 cents. The usual 2-cent advance per gallon is asked for Boiled Oil.

Spirits Turpentine.—Late last week there was a large demand for Turpentine in the South and at this point. Since that time the market has been dull, purchases being confined to small lots. Present quotations are as follows: Southern, 47 cents per gallon; machine made barrels, 47½ cents per gallon.

New England Hardware Dealers' Association.

THE next meeting of the New England Hardware Dealers' Association is announced for the evening of the 13th inst., the gathering being held as usual at the United States Hotel, Boston. The subjects which have been selected for discussion are Local Associations and Hardware Prices and Hardware Lists. Among the speakers of the evening will be G. E. Russell, president, and H. L. Russell, secretary, of the Springfield Hardware Social Club, Springfield, Mass.; Henry Hopkins, editor of *Hardware*, New York City, and A. H. Decatur of Baldwin, Robbins & Co., Boston. It is hoped that a large representation of the membership will be in attendance, as the subjects chosen for discussion are obviously interesting and important and worthy of careful consideration.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Rusting of Wire Nails.

From a well-known New England house we have the following communication, with reference to the trouble experienced on account of the quick rusting out of Wire Nails when exposed to the weather. Other merchants have doubtless had a similar experience, and the subject is one of some interest to the trade. We shall be glad to have any advices from our readers in regard to it:

With regard to the rapid rusting out of both Steel Wire and Steel Cut Nails, can you give us any reason for this? We have been told that it is on account of the acid in the "Ganister Linings" used in the melting furnaces for making Steel Nails. We find that on exposed work like the shingles of a house, in from two to five years, according to location, the Nails rust off entirely, leaving the shingles without anything to hold them in place.

In the old finished Iron Nail we have known the shingles to be removed after 50 years of wear, and still find enough fiber in the Nails to hold the shingles in place.

This is a matter that is giving a good deal of concern to both builders and Hardware dealers, and is causing a great deal of annoyance to householders, and we should like to know if the matter can be explained.

Buying from Jobbers.

A Hardware merchant in Illinois writes as follows, illustrating the condition of the market:

We are buying nearly all goods from jobbers, as we can get better prices than from manufacturers, and also quicker shipments.

Dates of Hardware Lists.

Touching on the importance of manufacturers giving the date of new lists which they send out we have the following from a prominent Hardware house in New Jersey. The trade will recognize the importance of the suggestion:

Any house, firm or manufacturer sending out new lists of continued changes in list prices and discounts should always print also the date on same. This seems to be insignificant, but it is important.

Example: Suppose you have a time table of some railroad without a date, could you depend on it? Rather doubtful. So with the list, if you go to your file for reference.

American Bicycle Company.

THE AMERICAN BICYCLE COMPANY, who were incorporated recently with a capital of \$40,000,000, have completed their permanent organization. The company secure control of 44 plants manufacturing Cycles, parts and accessories. The following officers and directors were elected:

Albert G. Spalding, president; George Pope, first vice-president; J. E. Bromley, second vice-president; A. L. Garford, treasurer; C. W. Dickerson, secretary.

Directors.—Albert G. Spalding, Albert A. Pope, A. Featherstone, R. L. Coleman, J. W. Kiser, E. C. Stearns, R. S. Crawford, Charles L. Ames, R. Philip Gormully and H. A. Lozier, Sr.

English Letter.

From a Special Correspondent.

TEN years ago American competition was not regarded seriously by British Hardware merchants. They knew, in a vague sort of way, that there were a few Hardware factories in the New England States, but never, in his wildest dreams, did the British manufacturer imagine that he was about to face a competition so keen and skillful as to dwarf the significance of the German trade expansion which was then taking place. To-day it is another story. German competition has ceased to be a bugbear; but the prevalence of American metal and Hardware goods throughout Europe, the British colonies and England itself is now a matter for serious concern in British workshops.

Former German Competition.

It is not necessary to examine into the cause of this great and (more or less) silent commercial revolution; the causes are many and various. It is my function to get down to detail and point out to readers of *The Iron Age* where new markets can be obtained for various lines of American Hardware and machinery. It may not, perhaps, be irrelevant to indicate briefly certain differences in method both of production and distribution as between the British, American and German manufacturers and merchants. Ten years ago the British factories were thrown into a state of consternation, indeed, almost of panic, by the inroads which the Germans were making upon what had hitherto been British commercial territory. Throughout Southern Europe, Russia, South Africa, South America, India and even Canada, the German traveler seemed ubiquitous. He was selling his goods at abnormally low prices, was making to pattern, and temporarily carried everything before him. But during the past few years British merchants have largely recovered their lost ground, and Germany is not relatively holding what she then gained. One reason for this is that the British manufacturer calmly stood by and let the German manufacturer spend large sums of money on experimentation. When the right article has been at length produced, at the initial expense of the German, the Britisher has bettered the German's instruction, and is now doing the trade. At the moment it is no exaggeration to assert that Germany is not able successfully to compete with either Great Britain or America. As the years go by, no doubt Germany will produce certain specialties, but in the general range of Hardware and metal goods the race is to the Anglo-Saxon, on the east and west of the Atlantic.

A general comparison between

British and American Methods

is not so easy, because they are essentially similar. Last year importers of American goods could rely upon American manufacturers making to pattern; this year the same men are complaining that it is just as difficult to induce Americans to make to pattern as it is to move the British manufacturer. This means, I take it, that American machinery is fast becoming stereotyped, and accordingly it becomes increasingly difficult to lay down special plant, unless the strongest possible inducements are offered. In this respect Americans are following the example of their British colleagues. But the advantage still rests with the Americans, because their machinery and patterns are more modern. Over here there is a settled determination not to invest in more automatic machinery than will meet average requirements. It is generally agreed that the Americans are more enterprising in this respect, for they seem ready to lay down enough plant to meet the heaviest demands. This may not be true; it is the view held over here by importers and shippers, who just now are busy looking out for various kinds of Hardware which cannot be procured from British firms for some months to come. A British manufac-

turer said to me the other day: "Let our Yankee friends lay down all the machinery they can; they will be sorry they have so much when a trade depression comes along. I'm quite content to keep down my machinery to reasonable limits." This may or may not be a short sighted policy; it is the average British point of view.

The American Opportunity.

In any case this is the time for Americans to make hay; for the British engineering shops and Hardware factories are exceptionally busy. If American machinery and Hardware are to be successfully introduced into England, this is the right time. There is quite a small army of American Hardware importers, one section in Liverpool, another in Birmingham, but the bulk of them will be found here in London. They are mostly doing good business; some have firmly established themselves and are supplying nothing but American products.

In this connection it is well to note some remarks made by the American Consul at Birmingham. He says that while the Americans are well ahead of the old country so far as mechanical production is concerned, they are behind British methods in

The Instinct for Profitable Trading.

It is constantly remarked that American houses might obtain much higher prices if only they would study the market a little more closely. The Britisher has a rooted objection to sell at a loss or even at cost; he wants the biggest profit he can get. He will hold out for his price, and sooner or later gains his end. It is not unusual for pushing young Americans to come over here and fairly take away our breath with some extraordinarily low quotations. It is magnificent; but it is not business. If he were to go to work quietly his sales would not materially suffer, and his visit prove more profitable. There has been too loud a *claque* about

"American Cheapness"

and it is quite unnecessary to play up to it. The successful American importers over here are they who have urged the quality and not the cheapness of their goods. It is a slower process, but pays far better in the long run. A strong objection to undercutting is that it spoils the market all round. The American exporter not only prejudices his British trade, but actually sets his own goods in competition with his best trading interests in South Africa, India, China and, in fact, all over the world. It would be excusable if it hit America's competitors; but it is a boomerang policy, hitting American traders, too.

Meantime the increasing number of British Hardware merchants who cross the Atlantic to buy American Hardware is significant. One of the greatest Hardware buyers in the world is

John Shaw & Sons, Limited,

of Wolverhampton, England. An active partner in this great concern is Charles E. Shaw, M.P. He has large interests in Canada, being there represented by that well-known agent, Godfrey S. Pelton of Montreal. Mr. Shaw has a keen eye for a bargain, and has learned to appreciate American goods. Last year, when in the Eastern States, the idea struck him that he ought to visit St. Louis for the purpose of making the acquaintance of the Simmons Hardware Company. Accordingly away he went, and soon he was exchanging notes and comparing experiences with the heads of that gigantic distributing firm. The result of that visit has been that the Simmons Hardware Company have agreed with John Shaw & Sons to act as their buyers for American goods, the British house to act in a similar capacity on behalf of the Simmons Hardware Company for British goods. John Shaw & Sons, established over a century ago, have this year organized an American department in their Wolverhampton warehouse, with a clerk whose special function it is to push American goods. This is surely a startling proof of American success.

Some Statistics.

An interesting return is just at hand, and, as it is quite an unusual document, I quote some pertinent details. It is a complete statement of goods imported into Great Britain during the three days of July 17, 18 and 19. I do not remember ever before seeing a three days' return. Values are not declared, but only the number of packages. Here is a short list of American goods imported during that short period:

	Packages.
Agricultural Implements.....	333
Bicycles.....	34
Copper Wire.....	584
Castings.....	129
Copper Plates.....	1,674
Hardware.....	1,181
Iron Tires.....	4,740
Lead Pigs.....	17,899
Machinery.....	313
Nails.....	1,475
Radiators.....	114
Steel Joists.....	355
Steel Bars.....	926
Woodware.....	155
Wire.....	545

The comparative returns of the above goods are equally interesting. For example, no Agricultural Implements came from any other country; only 13 Bicycles were imported from other countries, as against the 34 from America; against the 584 packages of Copper Wire imported from the United States, 110 came from France, 10 from Holland and 52 from Germany; no Copper Plates were imported, except from America. The Hardware return shows the same American predominance: 185 packages from France, 194 from Belgium, 33 from Holland, 45 from Germany, 1181 from United States of America. Against the 17,899 Lead Pigs, nothing was imported from the countries named. The British taste in machinery appears to be most catholic: 225 from France, 203 from Belgium, 51 from Holland, 134 from Germany and 313 from America. Of course, such a collection of data is purely fortuitous, but it, none the less, throws an interesting side light upon present international trade currents. Later on I will indicate in detail where these goods are wanted and who are the importers.

Wooden Ware.

In this return, 155 packages of Woodware are reported. This is a line for which there is a growing demand in England, and Boston exporters might push it with greater vigor. The fact is that apart from the intrinsic merits of Woodware and Pulpware, there has been a reaction in taste against the ugly Galvanized Iron goods, now so much in vogue. A well made wooden Bucket, at a reasonable price, stands a good chance against Galvanized Iron. Indeed, the whole range of domestic utensils, particularly for use in the houses of artisans, might well be made of Woodware, and at a remunerative price. Woodware is already being readily sold in the thickly populated counties of Yorkshire, Cheshire and Lancashire. An announcement to the Hardware trade by some American firm would, I am convinced, bring in a sheaf of inquiries. Pulpware, however, seems to be more popular than Woodware. There are some pulp works over here and they cannot keep pace with their orders.

From a Traveling Salesman.

AS a traveling man I hear many complaints and suggestions on current business, and as we are all working for one end, the improvement of the Hardware business, it has occurred to me to put forward for discussion in your magazine a statement of conditions sadly prevalent and some ideas I here advance for their correction.

Unbusiness-like Competition.

It often happens that one or two dealers in a city are spoiling the Hardware business in that city. Often these cutters are people of no rating or general usefulness outside of their business. Anybody can sell goods cheap if they don't pay for them, and there seems to be a general

desire among the legitimate trade to protect itself from cut-throat methods. Now, do not think I am drawing any picture of woe; the Hardware business is generally prosperous, but that is no reason why merchants should not wish to protect themselves and make their positions more solid to withstand any future reverses. Growth is the natural law; there can be no standing still.

A Cutter Sketched.

Now, to give an example, by no means an unusual one, there is upon my route, in New York State, a large city where one small dealer on a prominent street has largely spoiled the whole trade on many leading articles. For instance, all spring and summer he was selling long handled Shovels at 15 cents, and in June was selling a good looking, full sized Screen Door, all trimmed, at 45 cents each, and the same on a whole range of items. Everybody keeps hoping that it is a passing affliction, and that he will mend his ways or go out of business, and the continual wonder is where he gets the goods. He gets the goods, because after repeated failures and taking advantage of limberback drummers and new houses he now has the money to pay cash. Now, I am looking at this matter from both the manufacturers' and buyers' side, for our interest is identical. What can be done to remedy this condition?

Necessities to the Cutter.

To do a successful business these cutters have got to have certain staple articles and makes of goods. There are in that city several long established houses carrying full stocks of goods; these houses are really of some use to the city—they pay immense taxes—draw trade, not only for themselves, but for other stores and industries, and it is a public misfortune that they should be so pestered by waspish competition.

A Suggested Remedy.

Would it not be a proper measure of self-protection if they were to say to every traveling man and manufacturer, "We will not buy your goods if you sell these cutters." Ah, but the cutter says, "They have got to have the goods." Yes, but they will get them; the manufacturer cannot afford to lose their trade; other jobbers will not wish to antagonize them. The cutter would be forced to buy from small houses at high prices, which would make it impossible for him to cut prices—or else carry unsalable lines which the better houses would not handle. This course would be nothing but proper self-protection, and, besides, would have a tendency to stiffen prices all along the line, and, probably, save from failure weaker brothers in the business, who are in much danger of being crippled.

Marking Up Goods.

Another thing, is the generally recognized need to mark up goods; certain goods are selling at retail in every Hardware store at present wholesale cost. Take Picture Cord, for instance. If one firm should put up the price independently, it might lose customers, but if all the Hardware dealers in a city should confer with regard to prices, they might find it to their mutual advantage and do away with much unfair competition, and also put the business on a safer basis, for now it is often only the speculative buyer who makes any money. Should they thus mark up prices altogether, they would carry the bulk of the trade with them, for after all they do nine-tenths of the business, and, besides, it would give a great impetus to trade, for we all know there are more goods sold on a rising market than on a falling market. Bankers and other professions have weekly or monthly meetings. Why not Hardware dealers?

MRWIREGOODSMAN.

Request for Catalogues, &c

W. R. DASKAM & CO. are about to open a Hardware store at Houghton, Mich., and request catalogues and quotations on general Hardware, Stoves, Tinware, Plumbing Goods, &c.

Trade Winning Methods.

This department will contain a description of approved methods of bringing customers to the store by means of newspaper advertising, circulars and such special expedients and methods as are found useful by enterprising and progressive Hardwaremen.

A cordial invitation is extended to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

ADVERTISING FOR PROFIT.—NO. 1.

BY H. C. W.

In 25 years of Hardware experience the writer has seen a retail business grow from "a hole in the wall" to one of nearly \$100,000 annually, in the main as a result of trade winning methods, in which advertising in all its branches played a large part. I feel there is still much to learn and will be thankful for any criticisms on what follows.

TRUTH AND SINCERITY are the foundation stones of good advertising, as surely as untruth and bluster are those on which so many business men founder.

PAINSTAKING ADVERTISING.—The buying of advertising and filling of space, as carefully as your goods are bought and your shelves filled, should be a cardinal principle in every contract, or better not buy at all. It is as much your capital as are your other lines of goods, and should be treated as any other line from which a profit is expected.

BREVITY is the soul of advertising, as it is of wit, all else considered. We are fond of "locals," and 15 years ago bought of each daily paper the head line in its Local Brevities or Personal column, using it in each one every day of the year, never changing that one line, "The Springfield Hardware Co."

CITY BREVITIES.

The Springfield Hardware Co.

West's Fish Market. Phone 1371.

"spring suitings at reduced prices
Hack's.

"fresh and good,
Powell & Co.

"rider Al-
fine.

That runs *always*, no matter what else may be used, and has done us more good than any display work occupying columns. We are besought to remove it, asked if we have a cinch on that column, customers poke their heads in the door and ask, "who is the Springfield Hardware Company?" "will you *never* take it out?" &c. Additionally every new man or new firm coming to the city sees it, and it has led to many large accounts with us, practically without the seeking. It is a Bradstreet, Dun, directory and reference all in one.

Reading Notices.

READING LOCALS pay when to the point, and we use them on all occasions in preference to display unless a cut be needed for some special article, changing at least every week. We submit the following, which sold us 144 Clothes Wringers between the hours of 7 a.m. and 6 p.m., having filled a large show window with the entire stock for a week previous.

MONDAY the 18th only!
72 Good Iron Frame
Wringers @ \$1.29
Each.

72 Good Wood Frame Wringers @
\$1.49 Each.

These are not warranted rolls—but
splendid goods for the money.
The Springfield Hardware Co.

Here are other examples:

FREEZE Your cream in a
"White Mountain"
All sizes—\$1.50 and up
The Springfield Hardware Co.

100 Hammocks,
New, just in
50c to \$3.50.
The Springfield Hardware Co.

SCREEN Doors—cheap.
Windows—best.
Wire—all steel.
Trimings—complete
The Springfield Hardware Co.

SWINGS The Daisy \$3.00.
Perfect rest.
A perfect Hammock.
The Springfield Hardware Co.

LAWN MOWERS Made on honor
Light and strong
\$2.50, \$2.75, \$3.00
The Springfield Hardware Co.

What you say in display ads. seldom reads as well as if condensed to good reading locals. There the one is occasionally read through, the other is never missed. How much display would it take to be as effective as a local now in use as follows:

PARIS GREEN to Job.
1000 lbs. in $\frac{1}{2}$, 1, 2,
3 and 5 lb. cases.
Absolutely pure.
Retail 25c., or 5 lbs. for \$1.00.

At a cost of 30 cents for the ad. you tell of your goods, quality, quantity, that you both wholesale and retail, what sized packages kept in, price for each size, &c. In fact you have anticipated every question he would ask as a customer. He comes in and buys and you know the ad. is read because he asks for one of the sizes.

SINGLE ARTICLE advertising both attracts and pays better than bunching a number, just as truly as does window advertising. It catches the man or woman who is looking for his or her wants. Every once in a while you note the exclamation, "Come and go with me to Springfield Hardware Company; they have a Lawn Swing advertised that we want."

AN ILLUSTRATION.—To show the efficacy of mentioning but one article or line at a time: We do not handle Bulbs in our Seed list, but had made a desperate trade for 10,000 or four barrels. A couple of lines of local directed to show window and price, thrice repeated, disposed of every one of them finally. This is what was used:

10,000 Tube Rose Bulbs!
All in big window—
One penny each!
As long as they last.

They went by ones, fives, twenties and hundreds, lasting but a short time, leading us into a like quantity, with like results, for this season.

HARDWARE MERCHANTS AND ADVERTISING.—Yet there are people who say there is no merit in advertising, many of them being part and parcel of the Hardware trade. For some unexplainable reason the Hardware trade in general, while level headed and far seeing in all other matters, will unhesitatingly ignore this very important one.

THE IRON AGE ADVERTISING PRIZE COMPETITION—NO. 2.

A large number of advertisements have been submitted in accordance with the terms of *The Iron Age* Advertising Prize Competition No. 2, which are now in the hands of the committee receiving consideration. We are gratified to announce that they represent in general excellent and progressive methods of advertising, and embody many ideas and suggestions which should be serviceable to the trade.

FROM A HARDWARE CLERK.

The following communication is from a clerk in a New England Hardware store. We take pleasure in giving it as describing a method successfully adopted, which may be advantageously applied by others:

PERSONAL LETTERS.—In my mind one of the best methods of bringing trade is what might be called the "personal letter." Write a short, businesslike, individualized letter about your line, particularly your specialties. Leave the address line blank, then copy it on a mimeograph or similar machine, being careful to have each copy clear and distinct as possible.

TYPEWRITTEN COPY BEST.—Best results can be got from a typewritten letter. Then when sufficient copies are made insert the name and address of your customer in each. The letter being of a personal nature and addressed to him catches the customer's eye and does not go into the waste paper with circulars or printed ads.

A SUCCESSFUL TRIAL.—In one case the merchant received a number of replies by mail to the letters, and one man some time after came to the store and apologized for not answering the letter, saying that he wasn't much of a hand to write letters, but he wanted to acknowledge its receipt, adding he should need some of the goods mentioned a little later. Here is a specimen letter to convey my idea.

Dear Sir: As I know you are a user of Paints, Oils, &c., in considerable quantities I take the liberty of calling your attention to our line of — Mixed Paints. These Paints are made of absolutely pure Lead and Oil and their lasting qualities are unequaled. We have many strong recommendations of these Paints which we would be glad to show you. Best of all, try them yourself and be convinced of their excellence.

If we can sell you some of these goods we are confident you would use nothing else. Our line of Painters' Supplies is complete and the prices are moderate. Hoping for a share of your patronage, we are yours very truly,

L. J. BUTTS & CO.

SECONDARY TO NEWSPAPER ADVERTISING.—Where the dealer's line is varied it is well to get out several letters telling of the different lines, sending them to the men interested. This is of course a special method of reaching the trade and is only secondary to newspaper advertising.

C. Sidney Shepard & Co.'s Catalogue.

CATALOGUE No. 63 has just been issued by C. Sidney Shepard & Co., 23 and 25 Randolph street, Chicago. The Eastern houses of this firm, under the name of Sidney Shepard & Co., are located in Buffalo and New York City. The Western houses, under the name of C. Sidney Shepard & Co., are located in Chicago, St. Louis, Kansas City, Denver and Seattle. They are merchants and manufacturers, being proprietors of the Buffalo

Stamping Works. The new catalogue treats of such goods as are manufactured by stamping works, together with related lines. It comprises 240 pages, with an appendix of 16 pages, substantially bound in cloth and handsomely printed and illustrated. As a frontispiece, views are given of the stamping works at Buffalo and the seven different houses. The contents are systematically arranged as follows: Notable Household Specialties, Aluminum Ware, Stamped Ware, Pieced Tinware, Japanned Ware, Galvanized Ware, and Copper Ware. The remainder of the catalogue is devoted to miscellaneous goods, such as Coal Hods, Coal Vases, Stove Shovels, &c. A large line of tinner's, cornice makers' and roofers' tools and machinery is shown. The appendix contains a telegraph code and a number of goods which have been added to the firm's line since the catalogue was put to press.

Price-Lists, Circulars, &c.

ANDREWS WIRE & IRON WORKS, Rockford, Ill.: Catalogue of 48 pages illustrating specialties, comprising Weaners, Conductor Strainers, Eave Trough Hangers, Culinary Tongs, Barrel Covers, Coat Stretchers, Carpet Beaters, Potato Mashers, Kitchen Forks, Dish Drainers, Holders and Racks of various kinds, Wire Baskets, Toy Bedsteads and Swings, Metal Stands, Flower Shelves, Window Guards, Desk and Counter Railings, Office Railings, &c.

T. McAVITY & SONS, St. John, N. B., Canada: Illustrated catalogue of Engineers' and Steam Fitters' Brass Goods and Supplies. The book contains 98 pages, is numbered 27, and in point of size is very convenient for pocket use.

SPRINGFIELD DROP FORGING COMPANY, Springfield, Mass.: Catalogue B, 1900, illustrating, with list prices, single end Engineers', Box Tool Post, Milling Machine, Chuck, Double End Set Screw, Bicycle and other Wrenches, Tool Post Forgings, Tool Post Rings, &c.

HARDWARE SUPPLY COMPANY, Grand Rapids, Mich.: Furniture Hardware catalogue devoted to Catches, Desk Lid and Shelf Supports, Clamps, &c. The catalogue represents several new articles.

Trade Items.

ANNOUNCEMENT is made by Clendennin Brothers, Baltimore, Md., that George H. Harper, formerly with the Matthal-Ingram branch of the National Enameling & Stamping Company, has been appointed the general manager of their sales department. The many friends of Mr. Harper will extend to him congratulations on the position which he thus occupies.

Among the Special Notices in this issue will be found one signed "Padlocks," seeking a representative in London to take care of and extend the British and foreign trade of the advertisers in Padlocks, Night Latches and Hardware Specialties. The advertisement emanates from a well-known concern who are in a position to satisfactorily meet the demands of an export trade.

A MEETING of representatives of a number of the largest Window Screen and Screen Door manufacturers was recently held at Detroit. The meeting was largely of a social character, those present becoming better acquainted, and the matter of prices for next year was also discussed. No definite decision regarding prices was arrived at, however.

J. C. McCARTY & Co, 10 Warren street, New York, have been appointed agents of the Bay State Forge, Cambridgeport, Boston, Mass., who are manufacturers of a full line of Toe Calks, blunt, half sharp and sharp, long, medium and extra long, in all sizes from No. 0 to 7. J. C. McCarty & Co. will carry a stock of these goods in their warehouse for the convenience of the trade.

RIPLEY & BARTLETT, Plymouth, Mass., in their conspicuous advertisement in another part of this issue, call attention to their full line of Tacks and Small Nails for the Hardware trade, of which they have been manufacturers since their establishment in 1879. They also state that they make a full line of Shoe Finders' Goods, and that the quality of their product, which is made under the direct supervision of the members of the firm, is second to none.

J. B. NELLEGAR, president of the Wells & Nellegar Company, Chicago, returned on Friday from a two months' European tour, during which he visited portions of England, France and Germany. He reports having found evidences of great prosperity everywhere.

The advertisement of the Broadway Bicycle & Sundry Mfg. Company, 413 Broadway, New York, will be observed on another page. It will be noticed that some attractive prices are announced on tires lamps and bells, and the trade invited to send for the company's catalogue and bargain sheet.

Bowling Contest.

AN interesting bowling contest occurred in Chicago on the 23d ult. between members of the local Retail Hardware Dealers' Association. The North Side was pitted against the West Side, winning two out of the three sets, although the West Side made a grand total of 2536 points, as against 2471 by the North Side. Individual prizes were awarded to those getting the highest scores, as follows: First prize, an umbrella and cane set, presented by W. H. Bennett of the Reading Hardware Company, won by Geo. A. Engelhardt; second, a fine set of carvers, presented by the J. D. Warren Mfg. Company, won by G. C. Guthaus; third, an Atkins Saw, presented by E. C. Atkins & Co., Indianapolis, won by A. D. Held; fourth, another Atkins Saw, won by A. Ruhling. A salesmen's match game followed, which was hotly contested by representatives of wholesale houses.

Among the Hardware Trade.

The Orr & Lockett Hardware Company are greatly improving their premises on Randolph street, near State, Chicago. Their store heretofore has been L-shaped, having fronts on both Randolph and State streets, the Randolph street store being quite narrow. They have secured an adjoining building on the Randolph street side, and will hereafter occupy Nos. 71 and 73. It is their intention at an early day to discontinue the store on State street, as the additional room secured on Randolph street will very greatly exceed the amount of space thus given up. The store as it now fronts on Randolph street covers a space of 40 x 180 feet, and comprises four floors and basement. Both the first and second floors will be used for salesrooms and the other floors for the storage of stock. The enlarged store rooms are now being handsomely fitted up. The first floor will have an ornamental iron front, with large plate glass windows, and will have Luxfer prisms in the upper part of the front, making the interior very light. A new elevator will be added in the rear of the building and a platform will be constructed along the alley, to be used exclusively as a receiving platform for goods. The platform now in use will be devoted entirely to shipping purposes. When the improvements are completed the company will have one of the best equipped Hardware stores to be found.

Topping Hardware Company, Ottawa, Kan., have disposed of their business to the Franklin County Hardware Company. The former concern had been in business for 23 years and handled Shelf and Heavy Hardware, Sporting Goods, Farm Machinery, Vehicles and seeds. They built up a large and successful trade. Hudson Topping will move to Kansas City October 1 to fill the position of assistant manager of the Kingman-Moore Implement Company. The members of the new firm are referred to as having the necessary ability, experience and capital to successfully carry on the business which they have acquired.

Banning & Son have succeeded J. E. Pritchard, Union, Neb., dealer in Farm Implements.

W. H. Rhein & Co., Lander, Wyoming, dealers in Hardware, have added a stock of groceries.

Ochsner Hardware Company, Kimball, S. D., have moved into more convenient quarters. Their room is 40 x 70 feet in dimensions, with shelving from floor to ceiling. The firm handle Hardware, Stoves, Tinware, Farm Implements, Sporting Goods, &c.

O. J. Johnson & Co., Waseca, Minn., are now handling Dry Goods in addition to their former line of Hardware. They have rented the adjoining premises for this purpose, the two stores being connected by an arch.

The firm of Philpott & Armstrong, San Francisco, Cal., have recently been incorporated with a capital stock of \$50,000. Chas. H. Philpott has for the past ten years been in charge of the Builders' Hardware and Bronze Goods department of Dunham, Carrigan & Hayden Company of that city. S. V. Armstrong formerly represented Sargent & Co. of New York in the Southern States, but of late years has looked after their interests in the Pacific Coast. Messrs. Philpott and Armstrong will give the business their entire time and personal attention. They have made extensive improvements in the store at 823 Market street by adding a new art Hard-

ware room, said to be one of the most attractive sample rooms of its kind in the West. They have also put in new show windows and Cutlery cases. Their line comprises builders' fine Hardware, Tools and Cutlery. Mr. Armstrong is president of the company and Mr. Philpott secretary and treasurer.

E. S. Minard & Co., Elma, Wash., have rented the building adjoining their store and secured communication on each floor by cutting through partitions. This enlargement will put them in a position to handle their increasing trade more expeditiously.

McCabe & Anderson, Alvin, Texas, have dissolved partnership, and the business is now being conducted under the style of Anderson & Son.

The store of Charles A. Garner, Ambia, Ind., was burnt out a short time since. Mr. Garner's net loss was about \$2000.

O'Brien Bros., Red Lake Falls, Minn., will soon remove to new and larger quarters.

Barroll & Mohny have purchased the business of the Colfax Hardware Company, Colfax, Wash.

Geo. Deuser, Hardware merchant of Fairfax, Mo., has purchased the interest of his brother in the business at Rockport, and will hereafter manage both stores.

Miller & Winch are successors to Gasser & Winch at Homer, Neb.

Henry Luth is building an addition to his store at Johnstown, N. D.

Hutsinpillar & Sheridan, who are wholesale and retail dealers in Hardware, Stoves, Farm Implements, &c., Ironton, Ohio, with a view to taking better care of their customers, have divided their business into two departments—wholesale and retail—with an independent force of employees for each. Mr. Hutsinpillar will look after the jobbing department, while Mr. Sheridan will give attention to the retail part. The firm advise us that with the fine condition of things locally they have all the business that 14 men can take care of.

Union Hardware Company, Seattle, Wash., have incorporated with a capital stock of \$25,000. The business was established in 1875, and the stock comprises general Shelf Hardware, Carriage and Wagon Makers' Supplies, &c., which are handled both in a retail and wholesale way.

Miscellaneous Notes.

New Castle Shovel Company.

The assortment of shovels made by the New Castle Shovel Company, New Castle, Pa., for whom J. C. McCarty & Co., 10 Warren street, New York, are agents, includes a full line of hollow back shovels, which they are now prepared to supply. Nos. 2, 3 and 4, round or square point long or D handled, polished or black; also coal shovels, Nos. 1 and 2, ore shovels and Eastern pattern scoops and furnace shovels. Their brands for the first, second third and fourth grades are as follows: New Castle, Erie York and Cascade. The company have a well equipped plant and intend adding to their assortment from time to time. They call special attention to the quality of the goods.

The Sherman Pump Leathers.

Sometimes trouble has been experienced in the trade with faulty leathers for pumps, as they are spongy or the holes in the bottom are not in the center or fail to be uniform in size or have wrinkles in the walls of the cups. These faults have been carefully studied by the H. B. Sherman Mfg. Company, Battle Creek, Mich., who state that they are manufacturing leathers of such quality and by such processes as to overcome the objectionable features stated. Valve, plunger and cup leathers are referred to as being made of best oak tanned stock the leather as being of even thickness and as cut of proper size. For the convenience of the trade and further to insure dealers that they are securing the Sherman leathers, they are packed in boxes and properly labeled. In the 2-inch size of cup leathers four dozen are packed in a box; 2½-inch, three dozen; 2¾ and 2½ inch, two dozen; 3 and 3¼ inch, one and one-half dozen; 3½ to 4 inch,

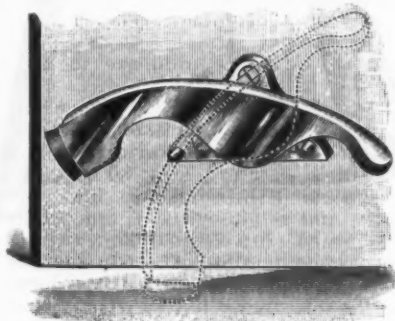
one dozen. The flat leathers are packed in boxes of one dozen. The leathers can be obtained from jobbers of well supplies and from the manufacturers direct.

American Steel & Wire Company as Chain Manufacturers.

Combining the products of their works at Cleveland, Ohio, and Worcester, Mass., the American Steel & Wire Company are putting on the market a full line of proof chains, galvanized pump chains, logging and ox chains, traces, breast and wagon chains, &c. In proof chains they manufacture all styles, including the common, the B B. and the B. B. B. Logging and ox chains are furnished in all sizes, and chains of any kind are furnished galvanized if desired. With the facilities possessed by the company for turning out these goods and in view of the fact that they conduct the manufacture all the way from the ore to the finished product, including galvanizing, they are obviously in an excellent position for producing this line of goods. Orders large or small addressed to the company will receive, they state, careful attention.

The Empire Door Holder.

The accompanying cut represents a door holder put on the market by the Caldwell Mfg. Company, Rochester, N. Y. The holder is designed to hold the door open at any angle, a light pressure of the foot throwing the presser either way. A spring which is inclosed holds the presser up when not in use and forces it down when the door is held open. The holder is suitable for use on car-

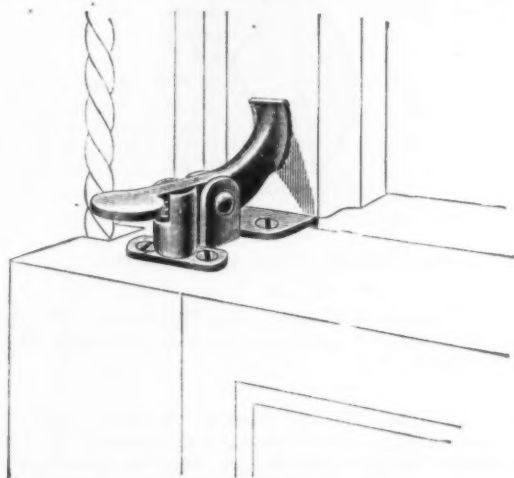


Empire Door Holder.

peted or polished floors, the rubber tip preventing the marring of the floor in the latter case. The holders are made in iron or bronze metal in all finishes. They are referred to as simple in construction, attractive in appearance, easily attached to the door and moderate in price.

Oefinger's Automatic and Burglar Proof Sash Lock.

An illustration is herewith given of a sash lock which has just been put on the market by J. L. Oefinger, 7



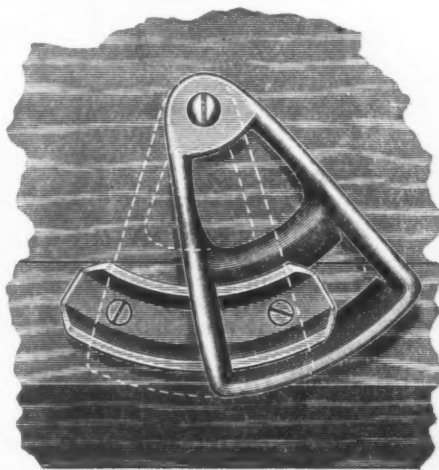
Oefinger's Automatic and Burglar Proof Sash Lock.

South Jefferson street, Chicago. The lock secures both upper and lower sashes at the same time. When the upper sash is lowered for ventilation the lock holds both sashes together at any point. Absolute security is thus

assured, as the top sash cannot be lowered or the bottom sash raised except from the inside.

Mount Carmel Seat Lock.

The Mount Carmel seat lock, patented, illustrated herewith, is manufactured by the Walter W. Woodruff & Sons Company, Mount Carmel, Conn. The lock is designed to attach to seats of vehicles of any kind and is described as a simple and inexpensive device, easy to apply, easy to lock or unlock and yet perfectly secure and cannot



Mount Carmel Seat Lock.

work loose. It consists of two pieces of malleable iron, one to attach to the seat and the other to the body of the vehicle. The clamp or locking plate is pivoted to the side of the seat by means of a screw and the opposite end of this plate has a dovetail groove or recess formed on an arc of a circle, which part attached to the seat riser swings out of the way when the seat is taken off of the body and is not so liable to be broken or bent as are so many of the rigid fasteners now used. The cleat which this riser engages is attached to the side of the vehicle by means of two screws, and in this the clamp above referred to moves freely, excepting when the weight of the seat is squarely over its center, when it becomes securely locked.

The Perfection Rain Water Filter.

J. L. Perkins & Co., 241 Lake street, Chicago, are sole agents for the United States of the Perfection rain water filter, recently patented and herewith illustrated. It is intended to be connected to conductor pipe and thus pre-

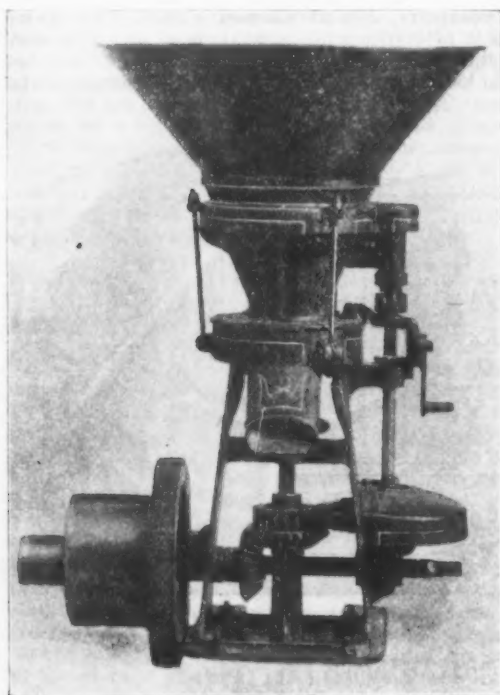


The Perfection Rain Water Filter.

vent leaves, insects and other undesirable matter being carried from roofs into cisterns. The cut shows a portion of the casing broken away to expose the interior. The water is strained through a linen sack fastened to a metal frame, which keeps it in place. The frame can easily be taken out to clean and replaced through the opening in the top. A coarse wire screen is used to protect the sack and it can also be removed separately. New sacks can easily be made when needed to take the place of those worn out. The filters have met with much favor in the short time since they were first brought out.

The Campbell Feed Grinder.

An illustration is herewith given of an entirely new feed mill which has been placed on the market by the Sundries Mfg. Company, South Bend, Ind. This mill was invented by a practical man for his own use, and



The Campbell Feed Grinder.

after its construction had been thoroughly approved by practical machinists and mechanical engineers it was brought out for general use. It has a shut off in the feed, which permits it to be reduced or increased in capacity as desired, depending upon the amount of power to be used. All parts exposed to friction are supplied with ball bearings. The whole mill is made of cast iron except the hopper, which is of sheet steel. The mill is constructed to run very easily, so as to take small power, and is claimed to have the best cob breaker thus far brought out for grinding corn and cobs. The manufacturers state that it will not choke. It not only grinds rapidly but finely.

Rotary Call Bells.

New Departure Bell Company, Bristol, Conn.. John H. Graham & Co., 113 Chambers street New York selling agents, have just put on the market the New Departure rotary call bells which give electric results without a battery. In a special booklet just issued a total of eight patterns, each in three distinct finishes, are illustrated



New Departure Rotary Call or Tea Bell.

and described, of which the cut herewith shown is one. The bell is operated by turning the tip at the top to the right. Some of the bases are solid, as shown, others having ornamental legs of open work. The gongs are both plain and ornamental. The bases are variously finished in antique copper, brass and oxidized silver, with gongs

of polished nickel, antique copper, brass and oxidized silver, some of the gongs being emerald and ruby jeweled. The engraving is two thirds size.

The Velox Ball Bearing Grindstone.

The Velox Machine Works, 315 Dearborn street, Chicago, have brought out the new grindstone which is shown herewith. It is supplied with a ball bearing shaft, a comfortable seat and double treadles to make the machine run as easy as a bicycle, enabling what is considered as the most tiresome of all jobs to be done with some de-



Fig. 1.—The Velox Ball Bearing Grindstone.

gree of pleasure. Fig. 1 shows the grindstone in position for operating. All parts of the frame are made of steel and painted with weather proof paint. The frame is light, but very rigid, and folds easily into a compact bundle for handling and shipping, as shown in Fig. 2. The



Fig. 2.—Velox Grindstone Picked for Shipping.

diameter of the stone used is about 22 inches. The stones are specially selected grit and are securely mounted so as not to get out of true.

The J. T. Henry Mfg. Company, Hamden, Conn., have issued a new folder illustrating and describing their well-known line of Henry's pruning or sheep toe shears, orange clippers, grape shears and tree pruners. They refer to their cheaper grade shears as well and substantially made, and call attention to the fact that all grades of their shears are made with pivot bolt, milled and with handles mortised to receive it, so that the bolt cannot turn when taking off or securing on the nut. They state that only the best refined malleable iron handles and cast steel blades are used. Special attention is called to Henry's new tree

pruner, which possesses, among other advantages, the special feature of commencing the cut at the upper part of the limb instead of under. We are advised that there has been a large increase in orders for tree pruners, and that the facilities of the company are being increased by the putting in of a new power plant, for which a new building is being erected.

Warren's Interchangeable Drawer Bases.

The J. D. Warren Mfg. Company, Masonic Temple, Chicago, have just brought out an improvement in their patent hardware shelving, making a change in the construction of the bases, so that the spaces in the bases

important feature of the improved bases referred to is that for goods that may be too numerous to conveniently handle in the glass front drawers the merchant can have one glass front drawer sampled with the goods, showing the various patterns but the stock and various lengths can be conveniently carried immediately under this glass front drawer in the base, as, for instance, files, chisels, &c. By the display of a line in one drawer the customer's attention is called to that line. In the base immediately under it, which has ample depth from front to back it enables the merchant to place each size of chisel or file in a drawer by itself, so that it is quickly found and the stock is always kept separated. By this arrangement the merchant has the advantage of the sample displayed and the heavy, bulky stock is stored where he is relieved

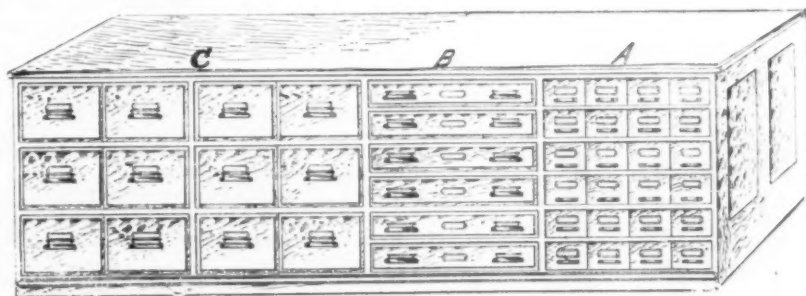


Fig. 1.—Warren's Interchangeable Drawer Bases.

hereafter will be so constructed that the drawers will be interchangeable from one base to another or from one space to another, thus enabling the merchant to transfer any size drawer (excepting one) to any place along the base he desires. Through this principle of transferring the drawers in the bases, as well as the cabinets above, goods of any kind can be transferred by use of the Warren shelving to any other location of the store and assembled in whatever form the merchant may desire, and at any location he may wish.

The arrangement will be understood by reference to the accompanying illustrations of the new base. Fig. 1 shows a base with a certain arrangement of drawers, lettered A, B and C. In Fig. 2 these drawers are shifted for more convenience in handling the goods to be stored in

from lifting the weight of the heavy drawers, and can easily reach the stock by drawing out the correct one in the base. This feature they carry throughout their shelving, it being equally important and valuable in each line.

1900 Bicycle Wrench.

Springfield Drop Forging Company, Springfield, Mass., are putting on the market a new bicycle wrench, as here shown. It does not differ radically from the company's last season's wrench except in its external appearance, it being now made plain or without a groove in the handle. In addition to this the company state that they are using

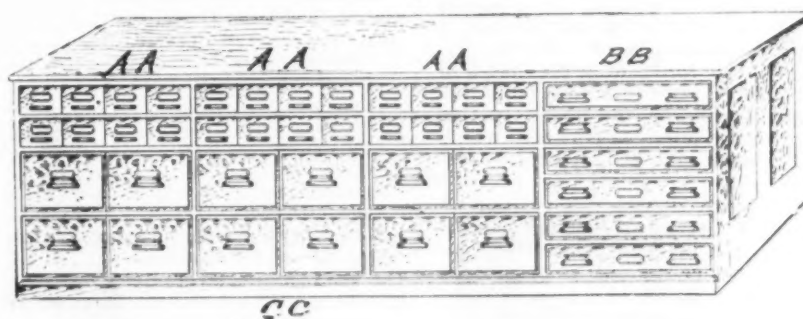
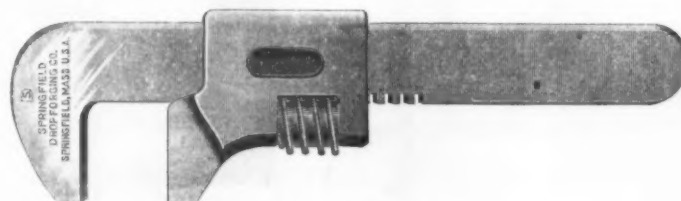


Fig. 2.—Drawers Shifted in the Base.

them, A A showing where the A drawers are placed, B B where the B drawers have been put, and C C where the C drawers have been arranged.

The study of the company has been to assemble goods in as compact a space as possible, at the same time having a distinct separate place for each article, and in carefully studying this they find the bases beneath the cabinets figure as a most important part and make valuable a space that has heretofore been usually ignored. The bases are so made with the cabinets above that all goods of one class are assembled, so that in waiting on a customer it can be done in a short space of time. With builders' hardware, for instance, they seek to have all the patterns of fasteners, pulls, locks, &c., well displayed in the cabinet with the glass front drawers. Beneath the cabinet is a base finished with drawers with various movable partitions, giving a space for the storage of heavy fixtures, such as parlor sliding door hangers, sash cord, blind hinges, &c. These drawers serve the purpose of carrying goods that could not well be put in the drawers with the glass fronts, as many of them are naturally too heavy, and as proper partitions could not be arranged in the upper cabinets. Through the form of construction of their new base any size of drawer, from one 4 inches wide up to one 24 inches, can be transferred to any base. The smaller drawers are arranged in a sub-cabinet. Another

a special grade of steel, so that the wrench polishes and finishes in a much more attractive way. It is drop



1900 Bicycle Wrench.

forged and the manufacturers fully guarantee its efficiency and quality.

The Leonard Mfg. Company, Grand Rapids, Mich., are meeting with excellent results in introducing the Leonard catalogue cabinet to the hardware trade. This cabinet was illustrated in these columns some time since and is admirably arranged for the preservation and systematic filing of catalogues. It is a complete and convenient

method for storing and classifying over 1000 catalogues, circulars, postal cards, &c., in compact form, and furnishes a ready means of finding them when wanted. It includes a cross index for the contents of all catalogues, a system of recording the market value of merchandise and a record of the movement of staple goods, which quickly detects dead stock and enables a buyer to buy without guessing. The company have issued a handsomely illustrated circular, which gives full information relative to this cabinet.

Revolving Window Fixtures and Sash Locks.

New Century Mfg. Company, 48 East Eighth street, New York, have recently put on the market the automatic revolving window fixtures and sash locks here illustrated.

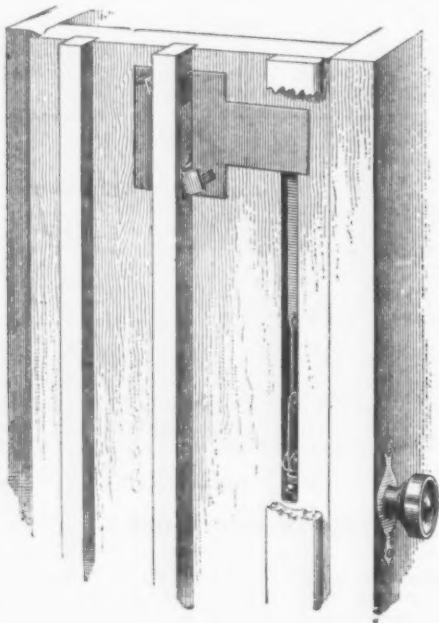


Fig. 1.—Steel Adjustable Safety Window Lock.

The fixtures are made of the best materials, complete and ready to affix to any window frame, new or old, a special feature being the ease with which they can be applied to old work by simply removing the stop bead. The revolving window fixture is a device for turning the sashes in windows so they may be cleaned on either side from the interior while the cleaner stands on the floor. In this connection a patented automatic latch is furnished, which prevents the sash being turned except at indicated points,



Fig. 2.—Both Sash Turned.

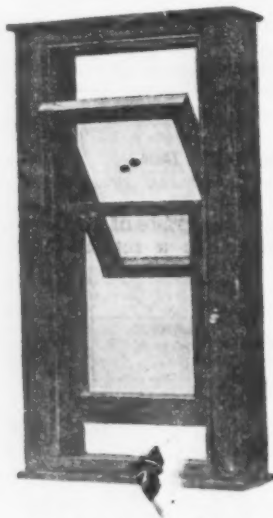


Fig. 3.—Top Sash Turned.

obviating any danger resulting from the sash being revolved by accident or carelessness. Other advantages are freedom from liability to accident in window cleaning, step ladders, window seats, safety apparatus and expert cleaners not being necessary, while ventilation can be had even in rainy weather, as the relative position of both sashes can be reversed and either or both sashes turned at almost any angle, permitting ventilation at top,

bottom and center if desired. A strip of wood, to which each sash is pivoted at the center of both sides and fastened to the regular sash cord and weight, moves up and down with the sash and out of sight. Adjustable curved flat springs press the bars tightly against the sash when closed, making it storm and dust proof, preventing rattling, while automatically adjusting itself to shrinking and swelling. The device is applicable to single as well as double sash. Another device which can be supplied if desired is a safety bolt, which prevents any revolution of sash except when withdrawn, together with an automatic adjustable friction pivot, designed to hold the sash at any desired point. An automatic roller latch and slide bar holder is made to automatically release the latch and permit the window to revolve when brought to a certain indicated point preventing also any jamming in pulley stile. The fixtures in the various devices can be supplied in steel or brass hardware, nicked, bronzed or oxidized, attached to oak or maple sliding bars, all ready for application.

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Current Hardware Prices.

REVISED SEPTEMBER 5, 1899.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, both by the manufacturers and the jobbers.

Cut Prices.—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, $\frac{1}{2}$ doz. \$3.00.....33 $\frac{1}{2}$ @33 $\frac{1}{2}$ @10 $\frac{1}{2}$
North's.....10 $\frac{1}{2}$
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....25 $\frac{1}{2}$
Taplin's Perfection.....50 $\frac{1}{2}$

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvils..... $\frac{1}{2}$ doz. 74@74 $\frac{1}{2}$
Hay-Budden, Wrought.....84@84 $\frac{1}{2}$
Horseshoe brand, Wrought.....94@94 $\frac{1}{2}$
Samson..... $\frac{1}{2}$ doz. 74@84 $\frac{1}{2}$
Trenton, Wrought..... $\frac{1}{2}$ doz. 84@84 $\frac{1}{2}$

Imported—

Armitage's Mouse Hole.....84@94 $\frac{1}{2}$
Peter Wright's.....94@94 $\frac{1}{2}$

Anvil, Vise and Drill—

Millers Falls Co., \$18.00.....20 $\frac{1}{2}$

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Common Double Spur, 70 $\frac{1}{2}$ @75 $\frac{1}{2}$ @5 $\frac{1}{2}$
Boring Machine Augers.....70 $\frac{1}{2}$ @75 $\frac{1}{2}$ @5 $\frac{1}{2}$

Car Bits, 12-in. twist.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

Jennings' Pattern:

Auger Bits.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

Ford's Auger and Car Bits.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Forstner Pat. Auger Bits.....25 $\frac{1}{2}$

C. E. Jennings & Co.:

No. 10 ext. lip. R. Jennings' list.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

No. 30. R. Jennings' list.....25 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Russell Jennings'.....25 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

L'Hommedieu Car Bits.....15 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Pugh's Black.....20 $\frac{1}{2}$

Pugh's Jennings' Pattern.....35 $\frac{1}{2}$

Snell's Auger Bits.....70 $\frac{1}{2}$

Snell's Bell Hangers' Bits.....50 $\frac{1}{2}$

Snell's Car Bits.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

Wright's Jennings Bits (R. Jennings' list).....50 $\frac{1}{2}$

Bit Stock Drills—

Standard list.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$ @5 $\frac{1}{2}$

Expansive Bits—

Clark's small, \$18; large, \$36.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Lavigne's Clark's Pattern, No. 1, $\frac{1}{2}$ doz., \$26; No. 2, \$18.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Stearns' No. 1, \$26; No. 2, \$18.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$

Swan's.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$

Gimlet Bits—

Common Double Cut, gro. \$2.75@3.25

German Pattern.....gro. \$5.00@5.50

Double Cut, makers' lists.....60 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Hollow Augers—

Bonney's Adjustable, $\frac{1}{2}$ doz., \$18.00

Douglas's.....33 $\frac{1}{2}$ @33 $\frac{1}{2}$ @10 $\frac{1}{2}$

Stearns', Common, No. 6.....10 $\frac{1}{2}$

Stearns', Nos. 1 and 2.....30 $\frac{1}{2}$

Ship Augers and Bits—

Ford's.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Snell's.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

L'Hommedieu's.....15 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Watrous's.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$

Awl Hafts, See Hafts, Awl.

Awls—

Brad Awls:

Handled.....gro. \$2.75@3.10

Unhandled, Shouldered gro. 65@66 $\frac{1}{2}$

Unhandled, Patent.....gro. 66@70 $\frac{1}{2}$

Peg Awls:

Unhandled, Patent.....gro. 51@54 $\frac{1}{2}$

Unhandled, Shouldered, gro. 65@70 $\frac{1}{2}$

Scratch Awls:

Handled, Common.....gro. \$3.00@3.75

Handled, Socket.....gro. \$11.00@12.00

Awl and Tool Sets—See

Sets, Awl and Tool.

Axle Grease—See Grease, Axle.

Axles—

Concord, loose collar.....54 $\frac{1}{2}$ c 5 c

Concord, solid collar.....54 $\frac{1}{2}$ c 54 $\frac{1}{2}$ c

No. 1 Common.....54 $\frac{1}{2}$ c 54 $\frac{1}{2}$ c

No. 1 $\frac{1}{2}$ Com. New Style.....44 $\frac{1}{2}$ c 44 $\frac{1}{2}$ c

No. 2, Solid Collar.....44 $\frac{1}{2}$ c 44 $\frac{1}{2}$ c

Nos. 7, 8, 11 to 14.....60 $\frac{1}{2}$ @5 $\frac{1}{2}$

Nos. 7, 8, 11 to 14, 100 sets.....extra 10 $\frac{1}{2}$

Nos. 15 to 18.....50 $\frac{1}{2}$

Nos. 19 to 22.....70 $\frac{1}{2}$

Balances—

Sash—

Caldwell low list.....80 $\frac{1}{2}$

Polman's.....65 $\frac{1}{2}$

Vanderbilt.....30 $\frac{1}{2}$

Spring—

Spring Balances.....50@50 $\frac{1}{2}$ @5 $\frac{1}{2}$

Chattillon's Light Spg. Balances.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$

Chattillon Straight Balances.....40 $\frac{1}{2}$

Chattillon Circular Balances.....50 $\frac{1}{2}$

Chattillon's Large Dial.....30 $\frac{1}{2}$

Barb Wire—See Wire, Barb.

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb.....3@3 $\frac{1}{2}$ c

Beams, Scale—

Scale Beams, List Jan. 12, '92.....40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @50 $\frac{1}{2}$

Chattillon's No. 1.....30 $\frac{1}{2}$

Chattillon's No. 2.....40 $\frac{1}{2}$

Bellows—

Blacksmith—

Standard list.....70@70 $\frac{1}{2}$ @5 $\frac{1}{2}$

Inch.. \$0 32 34 36 38 40

Each \$4.25 4.50 5.25 5.75 6.50 7.75

Extra Length:

Each \$4.75 5.25 5.75 6.50 7.75 8.75

Molders—

Inch.. 9 10 11 12 14 16

Doz.....\$6.75 7.25 8.50 9.50 12.00 14.50

Hand—

Inch... 6 7 8 9 10 12

Doz.....\$3.75 4.25 4.50 5.00 6.75 6.75

Bells—Cow—

Ordinary goods.....75 $\frac{1}{2}$ @10 $\frac{1}{2}$

High grade.....70@70 $\frac{1}{2}$ @10 $\frac{1}{2}$

Jersey.....75@75 $\frac{1}{2}$ @10 $\frac{1}{2}$

Texas Star.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Door—

Gong, Yankee.....55 $\frac{1}{2}$

Home, R. & E. Mfg. Co.'s.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Lever and Pull, Sargent's.....45 $\frac{1}{2}$ @10 $\frac{1}{2}$ @45 $\frac{1}{2}$ @10 $\frac{1}{2}$

Hand—

Hand Bells, Polished.....65@65 $\frac{1}{2}$ @10 $\frac{1}{2}$

White Metal.....65@65 $\frac{1}{2}$ @10 $\frac{1}{2}$

Nickel Plated.....50@50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Swiss.....65@65 $\frac{1}{2}$ @10 $\frac{1}{2}$

Miscellaneous—

Farm Bells.....lb. \$@3 $\frac{1}{2}$ c

Steel Alloy Church and School.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$

Belting

Rubber—

Common Standard.....70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$

Standard.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

Extra.....60@60 $\frac{1}{2}$ @10 $\frac{1}{2}$

High Grade.....60@60 $\frac{1}{2}$ @10 $\frac{1}{2}$

Leather—

Extra Heavy, Short Lap.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$

Regular Short Lap.....60@60 $\frac{1}{2}$ @5 $\frac{1}{2}$

Standard.....60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$

Light Standard.....70 $\frac{1}{2}$ @10 $\frac{1}{2}$

Bench Stops—See Stops, Bench

Benders and Upsetters,

Tire—

Brettell Tire Upsetter, \$15.....50 $\frac{1}{2}$

Green River Tire Benders and Upsetters.....20 $\frac{1}{2}$

Stoddard's Lightning Tire Upsetters.....40@50 $\frac{1}{2}$

Bicycle Goods—

Lane's Cycle Hanger.....33 $\frac{1}{2}$ @5 $\frac{1}{2}$

John S. Leung's Son's 1899 list:

Chain.....50 $\frac{1}{2}$

Parts.....50 $\frac{1}{2}$

Spokes.....50 $\frac{1}{2}$

Tub.....60 $\frac{1}{2}$

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—

See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Ad-

justers, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—Tackle—

Eddy's Steel.....80 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

Hartz Steel.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @80 $\frac{1}{2}$

Ford's Star Brand, Self Lubricating.....70 $\frac{1}{2}$

Hollow Steel, Ford's Pat. Star Brand.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

Lane's Patent Automatic Lock and Junior.....30 $\frac{1}{2}$

Stowell's Novelty, Mal. Iron.....50 $\frac{1}{2}$ @10 $\frac{1}{2}$

See also Machines, Hoisting.

Boards, Stove—

1899 List:

Zinc.....30 $\frac{1}{2}$

Other.....40 $\frac{1}{2}$

Bolts—

Carriage, Machine, &c.—

Common, list Jan. 30, '95, 50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ &

Norway Iron, \$3.00, list Oct. 7, '95.....75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$

Phila. Eagle, \$3.00 list.....30 $\frac{1}{2}$ @30 $\frac{1}{2}$ @10 $\frac{1}{2}$

Bolt Ends, list Jan. 30, '96.....60 $\frac{1}{2}$ @30 $\frac{1}{2}$ @10 $\frac{1}{2}$

Machine, list June 12, '96.....60 $\frac{1}{2}$ @30 $\frac{1}{2}$ @10 $\frac{1}{2}$

Now—Jobbers' prices on bolts are now generally lower than manufacturers'.

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch.....3 4 5 6 8

Per doz.....\$0.27 30 33 43 66

Cast Iron Bottom, Japanned:

Inch.....6 8 10

Per doz.....\$0.85 1.05 1.65

Cast Iron Chain, Flat, Japanned:

Inch.....6 8 10

Per doz.....\$1.10 1.32 1.87

Cast Iron Shutter, Brass Knobs:

Inch.....6 8 10

Per doz.....\$0.49 77 88

Wrought Barrel Brass Knob:

Inch.....3 4 5 6 8

Per doz.....\$0.44 50 61 70 1.28

Primers—
Berdan Primers, \$1.005%
B. L. Caps (Sturtevant Shells)5%
\$1.005%
All other primers.....\$1.10@1.13

Carpet Stretchers—
See Stretchers, Carpet.

Cartridges—

B. B. Caps, Con. Ball Sgd. \$1.30
B. B. Caps, Round Ball... \$1.12@1.13
Blank Cartridges:
32 C. F. \$5.5020¢5%
38 C. F. \$7.0020¢5%
22 cal. Rim. \$1.5020¢5%
32 cal. Rim. \$2.7520¢5%
Central Fire25%
Pistol and Rifle15¢5%
Primed S. & B. Bullets.....15¢5%
Pistol Fire Sporting50%
Rim Fire Military.....15¢5%

Castors—

B. B. Castors60¢10%
Plate60¢10%
Plate, part Brass60¢10%
Philadelphia60¢10%
Martin's Patent (Phoenix)60¢10%
Payson's Anti-friction Furniture70¢10%
Payson's Anti-friction Truck80¢10%
Standard Ball Bearing45%
Tucker's Patent, low list50¢50%
Tucker's Patent, low list50¢50%

Cattle Leaders—
See Leaders, Cattle.

Chain—

American Coil, Full Casks:
3-16 1/4 5-16 3/4 7-16 1/2 9-16 1/2
8.00 6.25 5.25 4.50 4.35 4.25 4.15
1/4 1/2 1 inch
4.05 4.00 3.90 3.80 cents per lb.
Less than Cask lots add 1/4@1/2 per lb.
German Coil, list July 25, '97
German Halter Chain, list July 24, '97
Trace, Wagon and Fancy Chains
list April, '9850¢10@50¢10%
Pack Chain, list July 10, '98
Iron50¢10@60¢10%
Brass50¢10@60¢10%
Gal. Pump Chain1/4 1/2@4¢4¢
Breast, Hitching and Reel Chains
Covert Sd. Works70%
Covert Mfg. Co.:
Breast40¢2%
Halter40¢2%
Reel40¢2%
Kettle40¢2%
Stallion40¢2%
Oneida Community:
Niagara and Eureka Weldless Coll
and Halters55¢65¢10%
Niagara and Eureka Weldless Cow
Ties55¢65¢10%
American Coll and Halters55¢65¢10%
American Cow Ties50¢50¢10%
Chalk—(From Jobbers.)
Carpenters', Bluegro. 50¢50¢
Carpenters', Redgro. 45¢47¢
Carpenters', Whitegro. 40¢42¢
See also Crayons.

Chalk Lines—See Lines.

Checks, Door—

Bardsley's40%
Colum50¢10%
Eclipse60¢60¢10%
Chisels—
Socket Framing and Firmer
Standard List75¢6¢75¢10¢5%
Buck Bros.30%
Charles Buck30%
Swan75¢75¢2¢4%
L. & J. White30¢30¢5%

Tanged—

Tanged Firmers40¢10@50¢10%
Buck Bros.30%
Charles Buck30%
L. & J. White, Tanged25¢5%

Cold—

Cold Chisels, good quality lb. 14¢16¢
Cold Chisels, fair qualitylb. 12¢
Cold Chisels, ordinarylb. 7¢7¢4¢

Chucks—

Beach Pat. each \$8.0020%
Skinner Patent Chucks:
Combination Lathe Chucks40%
Drill Chucks30%
Independent Lathe Chucks40%
Improved Planer Chucks20%
Universal Lathe Chucks40%
Face Plate Jaws35%
Union Mfg. Co.:
Combination40%
Czar Drill30%
Geared Scroll33%
Independent40%
Union Drill30%
Universal40%
Face Plate Jaws35%

Clamps—

Adjustable, Hammers'20@20¢5%
Adjustable, Stearns'30%
Cabinet, Sargent's45¢10@50¢10%
Carriage Makers', P. S. & W. Co. 40¢10%
Carriage Makers', Sargent's50¢10@50¢10%
Besly, Parallel33¢10%
Saw Clamps, see Files, Saw Filers
Stearns Malleable, with Wrought Iron
Screw75%
Stearns Steel33¢5%

Cleaners, Walk—

Star Socket, All Steel¢ doz. \$4.00 net
Star Shank, All Steel¢ doz. \$3.75 net

Cleavers, Butchers'—

Foster Bros.30%
New Haven Edge Tool Co.40%
Nichols Bros., Flat hdl., 30%; Rd. hdl., 40%
Payette R. Plumb25%
P. S. & W.33¢20¢33¢10%

L. & J. White25%

Clippers—

Chicago Flexible Shaft Company:
Handy Toilet¢ doz. \$7.20
Mascotte Toilet¢ doz. \$8.40
Monitor Toilet¢ doz. \$9.00
Stewart's Patent¢ doz. \$10.00

Clips, Axle—

Eagle and Superior 1/4 and 5-16
inch70¢10@75¢10%
Norway, 1/4 and 5-16 inch70¢10@75¢10%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list (Globe, Kerosene,
Lever Bibbs, Racking, &c.)70¢70¢5%

Coffee Mills—See Mills, Coffee.

Collars, Dog—

Brass, Pope & Stevens' list40%
Embossed, Gilt, Pope & Stevens' list 30¢10%
Leather, Pope & Stevens' list40%

Compasses, Dividers, &c.

Ordinary Goods70¢10@75¢10%
Bemis & Call Hdw. & Tool Co.:
Dividers75%
Callipers, Call's Patent Inside55%
Callipers, Double70%
Callipers, Inside or Outside70%
Callipers, Wing60%
Compasses50¢5%
J. Stevens & T. Co.35¢10%

Coolers, Water—

S. S. & Co.: 2-gal., \$15.49; 3-gal.,
\$17.00; 4-gal., \$19.85; 6-gal., \$25.50.

Coopers' Tools—

See Tools, Coopers'.

Cord— Sash—

Braided, Drablb. 21¢23¢
Braided, White, lb15¢20¢
Cable Laid Italian, lb. A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 100
Common Indialb. 8¢10¢
Cotton Sash Cord, Twistedlb. 15¢15¢
Patent Russialb. 15¢15¢
Cable Laid Russialb. 13¢14¢
India Hemp, Braidedlb. 14¢15¢
India Hemplb. 9¢10¢
Patent Indialb. 10¢10¢
Pearl Braided, cottonlb. 16¢
Massachusetts, Whitelb. 22¢
Massachusetts, D. ablb. 24¢
Eddy-tone Braided Cottonlb. 18¢
Harmony Cable Laid Italianlb. 18¢
Osawan Mills:
Crown, Solid Braided Whitelb. 17¢
Braided, Giant, Whitelb. 16¢

Peerless:
Cable Laid Italian16¢
Cable Laid Russian13¢
Cable Laid India11¢
Braided India18¢
Phoenix, White17¢
Samson:
Braided, Drab Cottonlb. 8¢1¢
Braided, Italian Hemplb. 31¢
Braided, Linenlb. 31¢
Braided, White Cotton, Spotlb. 27¢
Silver Lake:
A quality, Drab, 40¢15¢10%
A quality, White, 35¢15¢10%
B quality, Drab, 35¢15¢10%
B quality, White, 30¢15¢10%
Linen Hemp, 40¢15¢10%
Linen, 57¢15¢10%

Wire, Picture—

Braided or Twisted70¢70¢10%

Corn Knives and Cutters

—See Knives, Corn.

Crackers, Nut—

Aome, Japanned, 1/2 gr. \$30.40%
Aome, Nickel Plated, 1/2 gr. \$30.20%
Turner & Seymour Mfg. Co.50%

Cradles—

Grain50%

Crayons—

White Round Crayons, gross50¢6¢
Cases, 100 gro., \$4.50 \$5.00, at fac-
tory.
See also Chalk.

Creamery Pails—See Pails.

Crooks, Shepherds—

Fort Madison, Heavy¢ doz. \$7.00
Fort Madison, Light¢ doz. \$6.50

Crow Bars—See Bars, Crow.

Cultivators—

Victor Garden¢ doz. \$10.00

Cutters— Meat—

American30%
Nos. 1 2 3 4 5 6
Each\$7 \$10 \$25 \$50 \$60
Connecticut:
Nos. 0 1 8 10 12
Each\$1.75 2.25 3.00 3.00 3.50
Enterprise25¢25¢7%
Nos. 5 10 12 22 42
Each\$2 \$3 \$2.50 \$4 \$6
Dixon's¢ doz. \$3.25
Nos. 1 2 3 4
Each\$14.00 \$17.00 \$19.00 \$30.00
Hale's, 1/2 doz.11 12 13
Nos.\$27.00 \$33.00 \$45.00
Home No. 1, 1/2 doz. \$26.0060%
Little Giant, 1/2 doz.60%
Nos. 305 310 312 320 322
\$35.00 \$48.00 \$14.00 \$71.00 \$68.00

Creamery Pails—See Pails.

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Nos.\$27.00 \$33.00 \$45.00
Home No. 1, 1/2 doz. \$26.0060%
Little Giant, 1/2 doz.60%
Nos. 305 310 312 320 322
\$35.00 \$48.00 \$14.00 \$71.00 \$68.00

Miles' Challenge, 1/2 doz.45¢45¢10%
Nos. 1 2 3
\$22.00 \$30.00 \$40.00
New Triumph No. 605, 1/2 doz. \$24.00
33¢5%

Woodruff's, 1/2 doz.33¢5%
Nos. 100 150
\$15.00 \$18.00
Chadborn's Smoked Beef Cutter, 1/2 doz. \$60.00
Enterprise Beef Shavers25¢30%

Slaw and Kraut—

Henry Diss on & Son's:
Slaw, C. rn Grater, &c.40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9, 55%
Kraut Cutters 36 x 12, 40 x 1240%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters50¢50¢10%
Slaw Cutters, 1 Knife, 1/2 gr.\$15¢\$18
Slaw Cutters, 2 Knife, 1/2 gr.\$20¢\$27

Tobacco—

All Iron, Cheapdoz. \$4.50@5.50
Enterprise25¢30%
National, 1/2 doz. \$21.0040%
Sargent's, 1/2 doz. \$24.0060¢60¢10%

Washer—

Appleton's, 1/2 doz. \$16.0060¢10@60¢10%
Bonney's1/2 doz. \$4.75

Diggers, Post Hole, &c.—

Iwan's Improved Post Hole Auger40%
Iwan's Perfection Post Hole Digger¢ doz. \$10.00
Samson, 1/2 doz. \$34.0025%

Dividers—See Compasses.

Dog Collars—See Collars, Dog.

Door Checks—

See Checks, Door.

Door Springs—

See Springs, Door.

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, 1/2 doz. \$18;
No. 2, \$12; No. 3, \$11; No. 4, \$12.

Drawing Knives—

See Knives, Drawing.

Drills and Drill Stocks—

Common Blacksmiths' Drill, each
\$1.50@1.60
Blacksmiths' Self-feeding, each
\$5.00@6.00
Bench Drills, Stearns'59¢50¢10%
Breach, Millers Falls, each \$3.0025%
Breach, P. S. & W.40¢10%
Goodell Automatic Drills, 40¢5¢40¢10%
Ratchet, Bignall & Keeler30¢5%
Ratchet, Curtis & Curtis25%
Ratchet, Ingersoll's25%
Ratchet, Parker's40%
Ratchet, Weston's20¢25%
Ratchet, Whitney's20¢10%
Whitney's Hand Drill, No. 1, \$10.00;
Adjustable, No. 10, \$12.0033%

Twist Drills—

Standard List60¢10@10¢70¢5%
Drill Bits or Bit Stock
Drills—See Augers and Bits.

Drill Chucks—See Chucks.

Dripping Pans—

See Pans, Dripping.

Drivers, Screw—

Balsey's Screw Holder and Driver, 1/2 doz.
2 1/2-inch, \$6; 4-in., \$7.50 6-in., \$9.40%
Buck Bros' Screw Driver Bits27%
Champion40¢10%
Dixson's Flat Blade, Electric, &c.70%
Douglass Mfg. Co.20¢20¢10%
Fray's Hol. H'dle Sets, No. 3, \$12.00 50%
Gay & Parsons' Ratchet35%
Goodell's Automatic50¢10@10¢50¢10%
Mayhew's Black Handle50%
Mayhew's Monarch45¢10%
New England Specialty Co.50¢10%
New York, Manhattan and Handy20%
Sargent & Co's:
Nos. 1, 20, 40 and 60, 50¢10@50¢10%
Nos. 50 and 5550¢10@10¢60¢5%
Screw Driver Bits¢ doz. 50¢70¢
Stanley's H. & L. Co's:
No. 64, Varnished Handles70¢10%
No. 6675¢10%

Egg Beaters—See Beaters, Egg.

Emery—Nos. 4 to 54 to Flour, CF.

66 gro. 1.80 gro. F.F.F.
Kegslb. 4¢ 5 c 5 c
1/2 Kegslb. 4¢ 5 c 5 c
1/4 Kegslb. 5 c 5 c 5 c
10-lb. cans, 10
in case, 6 c 6 c 5 c
10-lb. cans, less
than 1010 c 10 c 8 c

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—

See Pins, Escutcheon.

Extractors, Lemon Juice—

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's50¢10%

Faucets—

Cork Lined70¢5¢70¢10¢5%
Metallic Key, Leather Lined65¢10@70%
Red Cedar50¢50¢10%

B. & L. B. Co.:
West's Lock, Open and Shut Key 50¢10%
John Sommer's Peerless Tin Key40%
John Sommer's Boss Tin Key50%
John Sommer's Victor Metal Key 30¢10%
John Sommer's Duplex Metal Key60%
John Sommer's Diamond Lock40%
John Sommer's L. X. L. Cork Lined50%
John Sommer's Reliable Cork Lined50¢10%

John Sommer's Common Cork Lined 70%
John Sommer's Chicago Cork Lined80%
John Sommer's O. K. Cork Lined50%
John Sommer's Perfection Cedar40%
Star Metal Plug, new list40¢40¢5%
Stearns' Wood, No. 200, Wood-lined
Key60%
Stearns' Matchless, Wood, No. 30060¢10%

Stearns' Gem, Wood, No. 40070%
Lockport, Metal Plug, reduced list 60¢5%
Self Measuring¢ doz. \$36.0040%
Lane's, 1/2 doz. \$38.0033%
National Measuring, 1/2 doz. \$66.0040%

Fellie Plates—

See Plates, Fellie.

Files—Domestic—

List revised June 1, 1899.
Best Brands70¢70¢10%
Good Brands75¢75¢10%
Fair Brands75¢10@80%
Second Quality80¢10@80¢10%
Imported—
Stubs' Tapers, Stubs' list, July 21,
'9725%

Fixtures, Grindstone—

Net Prices:
Inch. 15 17 19 21 24
Per doz. \$3.50 3.50 3.75 4.50 5.00
Stowell's Grant Grindstone Hammer¢ doz. \$6.00@7.00
Stowell's Grindstone Fixtures55¢10%
P. S. & W. Co.50¢10@10%
Reading Hardware Co.30¢20¢10%
Sargent's Patent70¢10@70¢10%

Fluting Machines—

See Machines, Fluting.

Fodder Squeezers—

See Squeezers, Fodder.

Forks—

Aug. 1, 1899, list.
Hay, 2 tine65%
Hay, 3 tine60%
Manure, 4 tine70%
Manure, 5 and 6 tine70%
Spading70¢5%
Victor, Hay70%
Victor, Manure70%
Victor, Header70¢2%
Champion, Hay60¢20%
Champion, Manure70¢5%
Columbia, Hay60¢5%
Columbia, Manure70%
Columbia, Spading70¢10%
Hawkeye, Wood Barley 4 tine 1/2 doz.
\$5.00; 6 tine, \$6.00.
Plated.—See Spoons.

Frames—

Saw—
Red, Polished and Varnished, doz.
\$1.00@1.10
Whitegro. \$3.25@3.50
Screens, Window and Door—
Bonanza Window Screens60¢60¢5%
Phillips' Window Screen Frames60¢5%
Porter's Extension Window Screens60¢5%
Stearns' Gem Window Screen Frames,
per doz. No. 25, \$1.75; No. 30, \$1.80;
No. 35, \$1.85; No. 40, \$1.90.
Wabash Spring Ad. Screen50%
Warner's Screen Corner Irons,
Nos. 0B&00B50%

Freezers, Ice Cream—

Qts. 2 3 4 6 8 10
Best, \$1.10 1.60 1.85 2.30 3.00 3.90
Good \$1.25 1.55 1.70 2.05 2.65 3.50
Fair \$1.00 1.10 1.30 1.75 2.30 2.90

Glimests—

Nail, Metal, Assorted, gro. \$1.40@1.75
Spike, Metal, Assorted gro. \$3.00@5.50
Nail, Wood Handled, Assorted,
gro. \$1.00@1.50
Spike, Wood Handled, Assorted,
gro. \$5.00@5.25

Glass, American Window

List Jan. 1, 1898.

Small lots from store:
Eastern.....80¢@20¢
Western.....80¢@20¢@35¢
From Factory, with Frt. Allowance:
Carloads.....80¢@15¢
1000 boxes or more, Gulf Ports.....
35¢@10¢
5000 boxes or more.....80¢@20¢
5000 boxes or more.....85¢

Glue—Liquid, Fish—

List A, Bottles or Cans, with Brush.
37½¢@50¢
List B, Cans (½ pts., pts., qts.).....
33½¢@45¢
List C, Cans (½ gal., gal.).....25¢@45¢

Glue Pots—See Pots, Glue.**Grease, Axle—**

Allerton's Axle:
10 Tins, ½ gr.....\$9.00
3 Tin Falls, ½ doz., \$2.00; 5 doz., \$3.00;
10 doz., \$6.00.
25 doz. wood pails.....½ doz. \$12.00
Dixon's Everlasting.....10 doz. pails, ea. 85¢
Dixon's Everlasting, in bxs., ½ doz. 1 m.
\$1.20; 2 m. \$2.00
Lower grades, special brands,
½ gr. \$5.00@6.50

Grindstone Fixtures—

See Fixtures, Grindstone.

Gun Powder—See Powder.**Hack Saws—See Saws.****Hafts, Awl—**

gro.
Peg Patent, Leather Top.....\$4.90@5.25
Peg Patent, Plain Top.....\$3.50@3.75
Sewing, Brass Ferrule.....\$1.50@1.60
Saddlers', Brass Ferrule.....\$1.35@1.45
Peg, Common.....\$1.25@1.35
Brad, Common.....\$1.35@1.50

Halters and Ties—

Covert Mfg. Co., Web.....45¢@25¢
Covert Mfg. Co., J. Rope.....45¢@25¢
Covert Mfg. Co., Sinal Rope.....35¢@25¢
Covert's Saddlery Works, 96 list.....70¢

Hammers—**Handled Hammers—**

Heller's Machinists'.....40¢@40¢55¢
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50,
\$1.75.....40¢@10¢
Peco, Stow & Wilcox.....40¢@40¢55¢
Fayette R. Plumb:
Artisans' Choice, A. E. Nail.....33½¢@75¢
Engineers' and B. S. Hand.....50¢@10¢
Machinists' Hammers.....50¢@10¢
A. E. & A. E., Bell Face Nail.....33½¢@75¢
Sargent's C. S. New List.....45¢@50¢

Heavy Hammers and**Sledges—**

3 lb. and under.....lb. 45¢
3 to 5 lb.....lb. 50¢ 75¢@5¢75¢
Over 5 lb.....lb. 50¢ 10¢@5¢
Note.—Lower net prices sometimes
made by Jobbers.
Wilkinson's Smiths'.....9½¢@10¢ lb.

Handcuffs and Leg Irons

See Police Goods.

Handles—

Agricultural Tool Handles—
Hoe, Rake, Fork, &c., 60¢@10¢@50¢@10¢55¢
Shovel, &c., Wood D Handle.....60¢@10¢

Cross-Cut Saw Handles—

Atkins'.....40¢
Champion.....45¢@45¢10¢
Daston's.....50¢

Mechanics' Tool Handles—

Auger, assorted.....gro. \$2.25@3.50
Auger, large.....gro. \$2.75@3.00
Brad Awl.....gro. \$1.40@1.50

Chisel Handles:

Apple Firmer, gro ass'd. \$2.25@
\$3.50; large, \$2.75@3.00.
Hickory Firmer, gro ass'd. \$2.25
@3.50; large, \$2.50@2.75.
Socket, gro. ass'd. Firmer, \$1.50@
\$1.60; Framing, \$2.50@2.75.
File, assorted.....gro. \$1.00@1.15
Hammer, Hatchet, Axe, &c.....50¢@10¢
Hoe, Rake and Fork.....
60¢@10¢@50¢@10¢55¢

Shovel and Spade, Wood D Handle.....
60¢@10¢

Hand Saw, Varnished, doz. 75¢@80¢
Not Varnished.....55¢@60¢

Plane Handles:
Jack, doz. \$2.25@2.50; Jack Bolted.....
55¢@60¢
Fore, doz. \$2.50@2.80; Fore, Bolted.....
70¢@75¢

Hangers—

Barn Door, New Pattern, Round
Groove, Regular:
Inch.....3 4 5 6 8
Doz.....\$1.25 1.25 1.25 1.25 1.25

Barn Door, New England Pattern,
Check Back, Round Groove, Regu-
lar:
Inch.....3 4 5 6
Doz.....\$1.25 1.25 1.25 1.25

Bigelow & Dowse Co.:
Paragon, No. 1, \$3.50; No. 2, \$4.50;
No. 3, \$5.50 ½ doz.

Chicago Spring Butt Co.:
Friction.....35¢@35¢10¢
Oscillating.....35¢@35¢10¢
Big Twin.....35¢@35¢10¢

Chisholm & Moore Mfg. Co.:
Advance.....55¢
Cleveland.....60¢
Baggage Car Door.....50¢
Elevator.....40¢
Railroad.....55¢

Lane Bros.:
Parlor, Standard.....40¢@25¢
Parlor, New Model.....40¢@25¢
Barn Door, Standard.....60¢@25¢
Covered.....50¢@10¢10¢
Special.....60¢@25¢

Lawrence Bros.:
Crown.....60¢@10¢
New York.....60¢@10¢@60¢@10¢55¢
Sterling.....60¢@10¢

McKinney Mfg. Co.:
No. 2, Standard, \$18.....80¢@10¢
No. 1, Special, \$13.....60¢@10¢

E. C. Stearns & Co.:
Gem Parlor Sliding Door.....60¢
Challenge.....60¢
Steel Single Track Parlor \$6.30@20¢
Royal Parlor Door.....60¢
Warner's Pat.....40¢
Warner's Imp'd Single.....50¢

Stowell Mfg. and Foundry Co.:
Badger.....60¢@10¢
Baggage Car Door.....33½¢
Chicago Anti-Friction.....55¢@5¢
Elevator.....40¢
Interstate.....60¢
Magic.....50¢
Matchless.....50¢@10¢
Nansen.....50¢@10¢
Parlor Door.....50¢
Railroad.....55¢@5¢
Street Car Door.....60¢@10¢
Steel, Nos. 300, 400, 500.....45¢@15¢
Wild West.....50¢@5¢
Zenith for Wood Track.....55¢@5¢

Taylor & Boggis Foundry Co.:
Kidd's.....50¢@50¢10¢
Van Wagoner & Williams Hdw. Co.:
American Trackless.....33½¢@10¢

Wilcox Mfg. Co.:
Aurora Steel Endless.....60¢
Bike Roller Bearing.....60¢@10¢15¢
Bike Steel Endless.....60¢@10¢15¢
C. J. Roller Bearing.....60¢@10¢15¢
Cycle Ball Bearing.....50¢@10¢
Dye Steel.....60¢@10¢
Economic Single Track.....50¢@10¢55¢
L. T. Roller Bearing.....70¢
New Era.....50¢@10¢
New Richards.....60¢
O. K. Roller Bearing.....70¢
Prindle Improved.....60¢@10¢
Richards' Improved.....60¢@10¢
Richards' Single Track.....50¢@10¢
Wilcox Dwarf Roller Bearing.....40¢@10¢

Wilcox-Ives.....60¢@10¢
Wilcox Tandem Roller Bearing.....60¢@10¢
Wilcox Trolley Ball Bearing.....40¢@10¢
Wilcox Trolley Roller Bearing.....50¢
Wilcox Trolley Roller Bearing.....40¢@10¢
Wood Track.....60¢

Wrought Hinges, Staples, &c.—See
Wrought Goods.

Hatchets—

Best Brands.....40¢@12½¢@50¢@5¢
Cheaper Brands.....50¢@10¢@60¢@5¢
Note.—Net prices often made.

Hay and Straw Knives—

See Knives.

Hinges—**Blind Hinges—**

Lull & Porter:
No.....1 1¼ 2 2¼
Doz. pair.....\$0.63 .63 .63 .63
1898 Old Pattern:
No.....1 3 5 5
Doz. pair.....\$0.74 1.33 1.33 1.33

Parker.....75¢@10¢@75¢@10¢55¢
North's Automatic Blind Fixtures, No.
2, for Wood, \$9.00; No. 3, for Brick,
\$11.50.....75¢@10¢
Reading's Gravity.....75¢@10¢
Sargent's, Nos. 1, 3, 5, 11, 13.....75¢@10¢
Wrightsville H'dware Co.:
Acme, Lull & Porter.....75¢
Buffalo Gravity Locking, Nos. 1, 3
and 5.....75¢
Champion Gravity Locking, No. 75.....80¢
1898, Old Pat'n, Nos. 1, 3 & 5.....75¢@10¢
Tip Pattern, Nos. 1, 3 and 5.....75¢@10¢
Double Locking, Nos. 20 and 25.....70¢@10¢
Empire, Nos. 101 and 103.....70¢
Niagara Gravity Locking, Nos. 1, 3
and 5.....75¢@15¢55¢
Noiseless, Nos. 50, 60, 65 and 55.....75¢@5¢
O. S. Lull & Porter.....75¢@5¢
Pioneer, Nos. 060, 45 and 54.....75¢@5¢
Steamboat Gravity Locking, No. 10.....80¢
Stanley's Steel Gravity Blind Hinges,
½ doz. sets \$1.20.....80¢@10¢

Spring Hinges—
Holdback, Cast Iron.....gro. \$6.50@6.75
Non-Holdback, Cast Iron.....gro. \$5.50@5.75

J. Bardsley:
Bardsley's Patent Checking.....15¢
Bommer Bros.:
Bommer's.....40¢
Chicago Spring Butt Co.:
Chicago.....25¢
Gardens City Engine House.....25¢
Keene's Saloon Door.....25¢

Lawson Mfg. Co.:
Matchless.....25¢
Matchless Pivot.....40¢
Payson Mfg. Co.:
Oblique, Dbl. Acting.....50¢@50¢55¢
E. C. Stearns & Co.:
Nos. 45 and 51.....75¢
Stover Mfg. Co.:
Ideal, No. 18, Detachable, ½ gr.....\$12.50

Ideal, No. 4.....½ gr. \$9.00
New Idea No. 1.....½ gr. \$9.00
New Idea, Double Acting.....45¢
Van Wagoner & Williams Hdw. Co.:
Acme.....30¢
American.....30¢
Columbia, No. 14.....½ gr. \$3.00
Columbia, No. 18.....½ gr. \$24.00
Crown.....30¢
Gem.....30¢
Knoxall.....½ gr. \$9.00
Oxford.....30¢

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar.
15, 1898:
Light Strap Hinges.....
Heavy Strap Hinges.....
Light T Hinges.....
Heavy T Hinges.....
Extra Heavy T Hinges.....
Note.—Change in base discount.

Roller Plate.....7 (7) 10¢@10¢
Screw Hinges.....1½ to 20 in. lb. 3 4¢@3¢
and Strap.....22 to 36 in. lb. 2.75¢@3¢

Hoes— Eye—
Scovill and Oval Pattern.....60¢@60¢10¢
Grub. list Feb. 23, 1899.....70¢@10¢75¢
D. & H. Scovill.....35¢@35¢55¢

Handled—
Aug. 1, 1899, List:
Field and Garden.....75¢@25¢
Ladies', Boys', Toy and Onion.....
70¢@10¢10¢
Street and Mortar.....75¢@7½¢@25¢
Cotton.....75¢@10¢10¢25¢
Planters'.....70¢@30¢
Weeding.....75¢

Note.—Manufacturers and jobbers use
a diversity of lists, and often sell at net
prices.

Ft. Madison Crucible Garden Hoe.....75¢@25¢
Ft. Madison Crescent Cultivator Hoe,
per doz.....75¢@10¢25¢
Ft. Madison Mattock Hoe, ½ doz.....\$1.50
Ft. Madison Sprouting Hoe, ½ doz.....\$4.80
Ft. Madison Dixie Tobacco Hoe.....75¢@25¢
Kretzinger's Cut Easy, per doz.....75¢@25¢
Warren Hoe.....75¢@25¢

Hog Rings and Ringers—
See Rings and Ringers.

Holisting Apparatus—
See Machines, Holisting.

Hollow Ware—
See Ware, Hollow.

Holders—
Bit—
Angular, ½ doz. \$24.00.....45¢@10¢

File and Tool—

Nicholson File Holders and File Han-
dles.....33½¢

Hooks—

Cast Iron—
Bird Cage, Reading List.....66½¢@70¢
Bird Cage, Sargent's List.....50¢@50¢55¢
Clothes Line, Sargent's List.....50¢@50¢55¢
Clothes Line, Stowell's.....70¢@5¢
Clothes Line, Reading List.....55¢@10¢@65¢@10¢10¢
Coat and Hat, Stowell's.....70¢@5¢
Coat and Hat, Reading.....70¢@75¢
Coat and Hat, Sargent's List.....50¢@10¢
Coat and Hat, Wrightsville.....65¢@10¢
Harness, Reading List.....70¢@10¢75¢

Wire—
Belt.....80¢@10¢@80¢@20¢
Atlas Coat and Hat.....50¢@50¢10¢
Wire Coat and Hat:
Acme.....60¢@60¢55¢
B. B.....70¢@70¢55¢
Gem.....60¢@5¢
Bright Wire Goods—See Wire.

Wrought Iron—
Box, or Case, Octagon Steel.....
doz. \$2.00@2.15
Cotton.....doz. \$1.00@1.10
Picture, T. & S. Mfg. Co.....75¢
Tassel, T. & S. Mfg. Co.....50¢@10¢
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—
Bush, Light, doz. \$5.00; Medium,
\$5.50; Heavy, \$6.00
Grass.....Nos. 1 2 3 4
Best.....\$1.60 1.75 2.00
Common.....\$1.50 1.50 1.50 1.75
Potato and Manure.....75¢@15¢
Whiffletree.....lb. 4½¢
Hooks and Eyes:
Brass.....70¢@10¢75¢
Malleable Iron.....75¢@10¢

Covert Saddlery Works' Self Locking
Gate and Door Hook, 4 in. ½ gross
\$13.00; 6 in. \$17.20.....70¢
Crown Picture.....50¢@10¢
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—See Nails, Horse**Horseshoes—**

See Shoes, Horse.

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....ft. 1¼@ 5¼¢
3-ply Standard.....ft. 5¼@ 6 c
4-ply Standard.....ft. 6¼@ 6¼¢
3-ply extra.....ft. 6¼@ 7¼¢
4-ply extra.....ft. 7¼@ 8¼¢
High Grade.....ft. 9 @ 11 c
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 5¼@ 6 c
Fair quality.....ft. 7 c
Good quality.....ft. 8 @ 8¼¢

Irons— Sad—
From 4 to 10.....lb. 2¼@3¼¢
B. B. Sad Irons.....lb. 3¼¢
Chinese Laundry.....lb. 4¼@4¼¢
Chinese Sad.....lb. 3¼@3¼¢
Mrs. Potts', per set:
Nos. 50 55 60 65
70¢@77¢ 65¢@73¢ 76¢@81¢ 76¢@81¢
New England Pressing.....lb. 3c

Soldering—
Soldering Coppers.....lb. 25¢@26¢
Covert Mfg. Co.....30¢@25¢

Pinking—
Pinking Irons.....doz. 50¢@60¢

Jack Screws—See Screws.
Jacks, Wagon—
Covert Mfg. Co., Steel.....45¢@25¢
Daisy, ½ doz. \$12.00.....70¢
Lockport.....40¢@40¢10¢
Victor, ½ doz. \$20.00.....70¢
Lane's Steel.....33½¢

Kettles—
Brass, Spun, Plain, list Jan. 10, '99
15¢@20¢
Enameled and Tea—See Ware, Hollow.

Knife Sharpeners—
See Sharpeners, Knife.

Knives—
Butcher, Shoe, &c.—
Dick's Butcher Knives.....40¢
Foster Bros' Butcher, &c.....30¢
Nichols' Butcher Knives.....50¢
Table and Pocket Cutlery and John Wil-
son's Butcher Knives—Net prices.
Hay and Straw—See Hay Knives.

Corn—
Ft. Madison Cut-Easy, ½ doz.....\$3.25

Drawing—
Standard List.....75¢@5¢@75¢@10¢
Adjustable Handle.....25¢@33½¢
Bradley's.....35¢
Swan's.....75¢@75¢25¢
Watrous.....30¢@10¢40¢
L. & I. J. White.....20¢@5¢25¢
Cauteolo's Folding.....50¢@50¢55¢

Hay and Straw—
Blizzard, from Jobbers.....\$5.75@6.00
Ivan's Sickle Edge.....doz. \$11.50
Lightning, from Jobbers.....\$6.50@7.00

Mincing—
Buffalo.....½ gro. \$15.00
Smith's, ½ doz. Single, \$2; Double, \$3
45¢@50¢

Miscellaneous—
Farriers'.....doz. \$3.00@3.00
Wostenholme's.....½ doz. \$3.00@3.25

Knobs—
Base, 2¼-inch, Birch, Rubber tip,
gro.....\$1.20@1.25
Carriage, Jap. all sizes.....gro. 27¢@50¢
Door, Mineral.....doz. 62¢@65¢
Door, For Jap. d.....doz. 75¢@78¢
Door, For Nickel.....doz. \$1.70@1.80
Bardsley's Wood Door, Shutter, &c.....15¢
Picture, Sargent's.....70¢@10¢
Snow's Victor.....50¢@10¢

Ladies— Melting—
P. S. & W.....35¢@10¢40¢
Reading.....30¢@10¢
Sargent's.....60¢@60¢10¢

Lanterns— Tubular—
Doz.
Regular Tubular.....\$8.00 10¢@5¢
Side Lift Tubular.....\$8.50 10¢@5¢
Square Lift Tubular.....\$8.50 10¢@5¢
Meyrow Side Lift Tubular, doz. \$8.50.....
50¢@10¢55¢

Bull's Eye Police—
2¼-inch flash light.....doz. \$3.50@3.75
2½-inch flash light.....doz. \$4.00@4.25
2½-inch regular.....doz. \$3.25@3.50
3-inch regular.....doz. \$3.50@3.75

Latches, Thumb—
Roggin's Latches.....doz. 28¢@30¢

Lawn Mowers—
See Mowers, Lawn.

Leaders, Cattle—
Small.....doz. 45¢; large, 50¢
Covert Mfg. Co.....45¢@55¢

Lemon Squeezers—

See Squeezers, Lemon.

Lifters, Transom—

Dickson:		
3 x 4 ft. x 1/2"	\$100	\$10.00
Other sizes, Iron	70¢	10¢10¢
Other sizes, Brass	70¢	10¢10¢
Excelator	60¢	60¢10¢
Paysou's:		
Solid Grip Nos. 303 and 304	\$103	\$11.00
Other sizes	70¢	10¢10¢

Lines—

Wire Clothes, Nos. 18	19	20
100 feet	\$3.50	\$2.25
75 feet		\$1.50
Oswan Mills:		
Crown Solid Braided Chalk	33¢	33¢
Mason's, No. 0 to No. 5	33¢	33¢
Silver Lake Braided Chalk, No. 0	\$6.00	\$6.00
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50		
Payson's:		
1/2"	60¢	10¢10¢

Locks, &c.— Cabinet—

Cabinet Locks.....35¢@40¢

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]

Reading	60¢	60¢10¢
R. & E. Mfg. Co.	50¢	10¢@60¢
Sargent & Co.	60¢	60¢10¢
S. B. & Co. Locks, Knobs, &c.	40¢	40¢10¢
Snow's Victor	60¢	10¢10¢

Elevator—

Stowell's.....88¢

Padlocks—

Wrought Iron, list Dec. 8, '97	70¢	5¢10¢5¢
Dog Collar, S. B. Co.	40¢	
R. & E. Mfg. Co. Wrt. Steel and Brass	50¢	
S. B. & Co.	40¢	

Sash, &c.—

Fitch's Patent	65¢	10¢
Ives' Patent	62¢	10¢@60¢
Payson's Perfect	70¢	
Payson's Signal (new list)	75¢	10¢
Reading	60¢	10¢10¢70¢

Machines—**Boring—**

Without Augers.

Douglas	\$2.50	\$3.00
Jennings	2.50	3.00
Millers' Falls	5.75	
Snell's, Rice's Pat.	2.50	2.75

Fluting—

Crown Jewel, 6 in.....\$2.50@2.75

Holisting—

Moore's Anti-Friction Differential Pulley Block.....30¢

Moore's Hand Holist, with Lock Brake.....20¢

Washing—

Wayne American	\$37.00	
Western Star, No. 2	\$8.00	
Western Star, No. 3	30.00	
St. Louis, No. 41	\$30.00	

Mallets—

Hickory	60¢	50¢10¢
Lignumvitae	50¢	50¢10¢
Tinners', Hickory and Applewood	60¢	55¢
Fiber Head Stearns'	80¢	10¢

Mattocks—

List Feb. 23, 1899.....65¢@55¢10¢5¢

Meat Cutters—

See Cutters, Meat.

Milk Cans—See Cans, Milk.**Mills— Coffee—**

Box and Side, list Jan. 1, '98.....60¢10¢@60¢10¢10¢

Net prices are often made on some goods which are lower than above discounts.

Enterprise Mfg. Co., list Jan. 17, '98.....30¢

National, list Jan. 1, '94.....30¢

Parker's Columbia and Victor.....60¢10¢

Parker's Upright.....30¢10¢40¢

Swift, Lane Bros.....30¢

Mincing Knives—

See Knives, Mincing.

Molasses Gates—

See Gates, Molasses.

Money Drawers—

See Drawers, Money.

Mowers, Lawn—

Net prices are generally quoted.

Cheap	10	12	14	16-inch
Good	5.00	3.25	3.50	all sizes
High Grade	4.00	4.25	4.50	4.75
Pennsylvania and Continental	60¢	10¢		

Philadelphia:

All Styles except A and E	70¢10¢
Style A, all Steel	60¢10¢
Style A, Low Wheel	60¢10¢
Style E, High Wheel	70¢10¢
Racine	60¢10¢10¢

Nails—Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered.
List July 20, 1899.....80¢10¢@80¢10¢5¢**Hungarian, Finishing, Upholsterers', &c. See Tacks.****Horse—**

Nos. 6 7 8 9 10		
A. C.	25¢	23¢ 22¢ 21¢ 21¢
American	9¢	9¢ 9¢ 9¢ 9¢ net
Ausable	28¢	26¢ 25¢ 24¢ 23¢
Capewell	19¢	18¢ 17¢ 16¢ 15¢10¢5¢
C. B. K.	25¢	23¢ 22¢ 21¢ 21¢
Champion	28¢	26¢ 25¢ 24¢ 23¢
Clinton Fin.	19¢	17¢ 16¢ 15¢ 14¢80¢5¢
Maud S.	25¢	23¢ 22¢ 21¢ 21¢
Neponset	23¢	21¢ 20¢ 19¢ 18¢
Putnam	23¢	21¢ 20¢ 19¢ 18¢33¢5¢
Vulcan	23¢	21¢ 20¢ 19¢ 18¢

Picture—

Brass Head	90	95	1.00	1.05	1.10	gro.
Por. Head	85	90	95	1.10	1.15	gro.

Nippers, See Pliers and Nippers.**Nut Crackers—**

See Crackers, Nut.

Nuts—

List Feb. 1, '99.		
Cold Punched.	Off	
Mfrs. or U. S. Standard.	list	
Hexagon, plain	h. 60¢	
Square, plain	h. 60¢	
Square, C. T. & R.	h. 40¢	
Hexagon, C. T. & R.	h. 90¢	
Hot Pressed:		
Mfrs. U. S. or Nar. Gauge Stand.	h. 80¢	
Square	h. 80¢	
Hexagon	h. 90¢	

Oakum—

Best or Government	lb. 64¢
Navy	lb. 64¢
U. S. Navy	lb. 64¢
Plumbers' Spun Navy	lb. 64¢
In carload lots 1/4 lb. off f.o.b. New York	

Oil Tanks—See Tanks, Oil.**Oilers—**

Brass and Copper	50¢10¢60¢
Tin or Steel	70¢70¢10¢5¢
Zinc	70¢70¢10¢5¢
Malleable, Hammers' Improved, No. 1	\$3.60; No. 2, \$4; No. 3, \$4.40
Malleable, Hammers' Old Pattern	same list
Wilmot & Hobbs Mfg. Co.	50¢10¢70¢

Openers, Can—

French	doz. 35¢
Iron Handle	doz. 60¢75¢
National, # gro.	\$1.75@2.00
Sardine Sissors	# doz. \$2.00@2.10
Sprague, Iron or Wood Handles	# doz. 40¢45¢
Stowell's	75¢10¢

Packing—**Rubber—**

Standard, fair quality	70¢10¢75¢
Inferior quality	75¢10¢30¢
Extra	60¢5¢60¢10¢5¢
Jenkins' Standard	# 80¢. 25¢25¢5¢

Miscellaneous—

American Packing	9¢10¢ lb.
Cotton Packing	15¢14¢ lb.
Italian Packing	10¢11¢ lb.
Jute	5¢5¢ lb.
Russia Packing	15¢13¢ lb.

Pails—

S. S. & Co., with gauges. No 1 \$6.50;

No. 2, \$7.00 # doz.

Galvanized—

Inch	10	12	14
Water, Standard	gro.	\$21.00	\$23.00
Water, Competition	gro.	\$20.00	\$22.00
Fire, Rd. Bottom	gro.	\$20.00	\$21.00
Well, gro.	gro.	\$20.00	\$21.00

Pans—**Dripping—**

Large Sizes	lb. 4 1/4¢
Small Sizes	lb. 5 1/4¢

Fry—

Standard List.....80¢@80¢10¢

Roasting and Baking—

Reed, S. S. & Co., # doz.	Nos. 5, \$4.25;
10, \$4.75; 20, \$5.25; 30, \$5.75	
Simplex, # doz.	No. 40, \$29.50; 50, \$33.00; 60, \$36.00.

Paper—**Building Paper—**

Rosin Sized Sheathing	500 sq. ft.
Light wt., 20 sq. ft. to lb.	\$0.85@0.40
Medium wt., 12 sq. ft. to lb.	\$0.55@0.60
Heavy wt., extra quality	\$0.95@1.05
Barrett's Water Proof Sheathing	\$1.35@1.75
Medium Grades Water Proof	\$0.80@1.25
Sheathing	\$0.80@1.25
Deafening Felt, 9, 6 and 4 1/2 sq. ft. to lb., ton	\$10.00@4.00

Tarred Paper.

1 ply (roll 300 sq. ft.)	ton \$25.00@37.00
2 ply, heavy, roll 100 sq. ft.	90¢
3 ply, light, roll 100 sq. ft.	75¢
3 ply, heavy, roll 100 sq. ft.	\$1.20
3 ply, light, roll 100 sq. ft.	\$1.00

Sand and Emery—

List April 19, 1898.....50¢@50¢10¢5¢

Parers—**Apple—**

Advance	# doz. \$4.50
Baldwin	# doz. \$5.00
Bonsaca	# each \$5.00
Dandy	# each \$7.50
Eureka, 1898	# each \$16.00
Family Bay State	# doz. \$12.00
Hudson's Little Star	# doz. \$4.00
Hudson's Rocking Table	# doz. \$5.50
Improved Bay State	# doz. \$37.00@30.00
New Lightning	# doz. \$5.50
Reading 78	# doz. \$4.00
Reading 78	# doz. \$7.00
Turn Table	# doz. \$4.50
Turn Table 98	# doz. \$5.50
White Mountain	# doz. \$4.00

Potato—

Saratoga	# doz. \$5.50
White Mountain	# doz. \$4.50

Picks and Mattocks—

List Feb. 23, 1899.....65¢@65¢10¢5¢

Pinking Irons—

See Irons, Pinking.

Pins—**Escutcheon—**

Brass	60¢@60¢5¢
Iron, list Nov. 11, '85	60¢@60¢5¢

Pipe, Cast Iron Soil—

Factory Shipments.

Standard, 2-6 in.	60¢
Extra Heavy, 2-6 in.	65¢
Fittings	60¢10¢10¢70¢

Pipe, Wrought Iron—

Factory Shipments.

Factory Shipments.

List February, 1899.

Plain and Galvanized:

Carload lots.....50¢10¢10¢

Less than carload lots.....50¢10¢

Screw and Socket Casing.....

Inserted Joint Casing.....

Cold Drawn Seamless Steel Tubin

Planes and Plane Irons—**Wood Planes—**

Molding	40¢2 1/2¢@40¢5¢
Bench, First quality	45¢10¢@45¢10¢5¢
Bench, Second quality	60¢10¢@50¢10¢5¢
Bailey's (Stanley R. & L. Co.)	50¢10¢10¢50¢10¢10¢
Gage Self Setting	35¢

Iron Planes—

Bailey's (Stanley R. & L. Co.)	50¢10¢10¢50¢10¢10¢
Chaplin's Iron Planes	50¢10¢
Miscellaneous Planes (Stanley R. & L. Co.)	25¢10¢10¢25¢10¢10¢10¢
Sargent's	60¢10¢10¢70¢

Plane Irons—

Standard List	30¢5¢@30¢10¢
Buck Bros.	30¢
Butcher	\$5.00@5.25 to 2
Stanley R. & L. Co.	50¢10¢50¢10¢10¢
L. & I. J. White	20¢5¢@25¢

Plates—

Fellor	lb. 3 1/2¢@3 1/4¢
Self-Sealing Pie Plates (S. S. & Co.)	# doz. \$2.00.....50¢

Pliers and Nippers—

Gas	7	8	9	10-in
Best	\$5.25	\$6.00	\$6.50	doz.
Good	\$2.50	2.75	3.00	3.50 doz.
Acme Nippers				50¢
Bernard's:				
Parallel Pliers, &c.	53¢			
Paragon Pliers	50¢			
Lodi Pliers	50¢			
King City Fence Pliers	3.95¢			
Button's	65¢			

Heller's Farriers' Pincers and Tools—

Morrill's Parallel	# doz. \$12.00.....40¢@40¢5¢
P. S. & W. Cast Steel	50¢@50¢5¢
P. S. & W. Tinners' Cutting Nippers	add 6%.....10¢
Utica Drop Forge & Tool Co.:	
Combination Pliers	40¢5¢
Slide Cutting Pliers	40¢5¢
Ball Patent Nipper	40¢5¢
Round and Flat Nose Pliers	40¢5¢
End Cutting Pliers	40¢5¢
Royal Blue	40¢5¢
Glass Pliers	40¢5¢
Burner Pliers	40¢5¢

Plumbs and Levels—

Plumbs and Levels	70¢10¢10¢75¢10¢10¢
Dialston's	70¢
Pocket Levels	70¢10¢10¢75¢10¢
Stanley R. & L. Co.	70¢10¢10¢70¢10¢10¢10¢
Stanley's Duplex	25¢10¢25¢10¢10¢
Woods' Extension	33¢

Poachers, Egg—

Buffalo Steam Egg Poachers	# doz.
No. 1, \$3.00; No. 2, \$2.00; No. 3, \$2.00;	
No. 4, \$12.00	50¢

Points, Glaziers'—

Bulk and 1 lb. papers	lb. 10 1/4¢@11 1/4¢
1/4-lb. papers	lb. 11¢@12¢
1/4-lb. papers	lb. 11 1/2¢@12 1/2¢

Pokes, Animal—

Ft. Madison Hawkeys	# doz. \$3.00
Ft. Madison, Western	# doz. \$3.50

Pulleys—

Hay Fork, Swivel or Solid Eye	doz. \$1.75@2.00
Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, # doz. \$12.00	40%
Hot House, Awning, &c.	60@60&10%
Japanned Clothes Line	60@60&10%
Japanned Screw	70&10&10%
Japanned Slide	70&10&10%
Stowell's Ceiling or End Anti-Friction	60%
Stowell's Dumb Walter, Anti-Friction	60&10%
Stowell's Electric Light	50%
Stowell's Side, Anti-Friction	60%
Sash (Auger Mortise)	
Common Sense, 1 1/2 in., # doz. 18¢	
2 in., 20¢	
Empire	1 1/2 in., 17¢; 2 in., 19¢
I. C.	1 1/2 in., 15¢; 2 in., 17¢
Ideal No. 13	1 1/2 in., # doz., 18¢
Improved	1 1/2 in., 17¢; 2 in., 19¢
Niagara	1 1/2 in., 16¢; 2 in., 19¢
No. 26, Troy	1 1/2 in., 15¢; 2 in., 19¢
Star	1 1/2 in., 16¢; 2 in., 19¢
Acme	1 1/2 in., 18¢; 2 in., 20¢
Tackle Blocks—See Blocks.	

Pumps—

Cistern	60@60&5%
Pitcher Spout	75%
Pump Leathers, all sizes	gro. \$6.00
Flint & Walling's Fast Mail	50&55%
Flint & Walling's Pitcher Spout	75%
Myer's Pumps, low list	50%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.	20%

Punches—

Revolving	doz. \$5.60@5.75
Saddlers' or Drive, good	doz. 60@65%
Spring, good quality	\$1.70@1.80
Bemis & Call Co.'s Cast Steel Drive	50&5%
Bemis & Call Co.'s Check	55%
Bemis & Call Co.'s Spring	50&5%
Bemis & Call Co.'s Springfield Socket	85%
Niagara Hollow Punches	45%
Niagara Solid Punches	55%
Spring, Leach's Pat.	15%
Steel Screw, B. & K. Mfg. Co.	50%
Tinners' Hollow, P. S. & W. Co.	20&2%
Tinners' Solid, P. S. & W. Co.	20%
	\$1.44

Rail—**Barn Door, &c.—**

Barn Door, Light, In. 1/4 5/8 3/4	
100 feet	\$1.50 \$1.95 \$3.60
B. D., for N. E. Hangers:	
Small	
Med. Large	
100 feet	\$1.80 2.00 2.50
Sliding Door, Bronzed Wrt Iron	ft. 64¢
Sliding Door, Iron Painted	ft. 2 1/2¢
Sliding Door, Wrought Brass	1 1/2 in. 36¢
36 in.	36¢
Cronk's Double Braced Steel Rail	ft. 31¢
100 ft.	31¢
Laues' O. N. T., # 100 ft., 1 inch	\$3.00
Laues' Standard, # 100 ft.	4.35
McKinney's None Better	ft. 25¢
McKinney's Standard	ft. 31¢
Moore's, Wrt. Bracket, Steel	31¢
Stowell's Steel Rail	35&10%
Terry's Steel Rail	ft. 31¢

Rakes—

Aug 1, 1899, List:	
Cast Steel	70&5¢
Malleable	60&5%
Fort Madison Red Head Lawn	\$3.25
Fort Madison Blue Head Lawn	\$3.00

Rasps, Horse—

Diston's	75%
Heller Bros.	60&10%
New Nicholson Horse Rasp	70&10%
See also Files.	

Razor Stroops—

See Stroops, Razor.

Reels—**Fishing—**

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Popolo and Salmon, Single Action, Multiplying and Quadruple, all sizes	25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102P and PN, 302P and PN, 304P and PN, 00304P and PN, 502 and 502N, 502 and 502N, 02054N, Competitor, 50%	
Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN	40&10%

Registers—

For points on Mississippi River and East:	
Black Japanned	40%
White Japanned	50%
Bronzed Finishes	40%
Nickel Plated	40%
Electro Plated in Brass, &c.	40%
White Porcelain	30%
Solid Brass and Bronze Metal	65%
Note—Higher prices are quoted in territory further West.	

Rings and Ringers—**Bull Rings—**

	2	2 1/2	3 Inch
Steel	\$0.90	1.00	1.05 doz.
Copper	1.10	1.20	1.25 doz.

Hog Rings and Ringers—

Hill's Rings, gro. boxes, \$3.75@4.00	
Hill's Ringers, G. I.	doz. 50@55¢
Blair's Rings	gro. \$1.25@1.50
Blair's Ringers	doz. 55¢@60¢
Brown's Rings	gro. \$1.25@1.50
Brown's Ringers	doz. 55¢@60¢
Perfect Rings	gro. \$7.25@7.75
Perfect Ringers	doz. 75@80¢

Rivets and Burrs—

Copper	40&10@50%
Iron or Steel:	
Tinners'	60@60&10%
Miscellaneous	60@60&10%

Rivet Sets—See Sets.**Roasting and Baking****Pans—See Pans, Roasting and Baking.****Rollers—**

Acme, Stowell's Anti-Friction	50&10%
Barn Door, Sargent's list	60&10@70%
Lane's Stay	35&25%
Stowell's Barn Door Stay	doz. \$1.00

Rope—

Manila, 7-16 in. and larger	
Manila	lb. @ 11 1/2¢
Manila, 1/4 inch lb.	@ 12 c
Manila, 3/4 and 6-16 in. lb.	@ 12 1/2¢
Manila, Tarred Rope, 15 thread	lb. @ 11 1/2¢
Manila Hay Rope Med'm lb.	@ 11 1/2¢
Sisal, 7-16 in. and larger lb.	@ 9 1/2¢
Sisal	lb. @ 10 c
Sisal, 3/4 inch lb.	@ 10 c
Sisal, 1/4 and 6-16 in. lb.	@ 10 1/2¢
Sisal, Hay Rope, 5 to 10 ply	lb. @ 9 1/2¢
Sisal, Med'm Lath Yarn lb.	@ 9 c
Cotton Rope:	
Best, 1/4 in. and larger lb.	15 @ 14 c
Med'm, 1/4 in. and larger	lb. 10 @ 13 c
Com., 1/4 in. and larger lb.	8 @ 10 c
Jute Rope	lb. @ 8 c
Wire Rope—	
List July 1, '99	30¢@3 1/2%

Ropes, Hammock—

Covert Saddlery Works	70%
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Rules—

Boxwood	75¢10¢10¢10¢75¢10¢10¢
Ivory	40¢10¢10¢10¢40¢10¢10¢10¢
Lufkin's Steel	50&10%
Lufkin's Lumber	50&10%
Stanley R. & L. Co.	50&10%
Boxwood	75&10¢1¢75&10¢10¢10¢10%
Ivory	40&10¢10¢40&10¢10¢10%

Sad Irons—See Irons, Sad.**Sand and Emery Paper and Cloth—**

See Paper and Cloth.

Sash Cords—See Cord, Sash.**Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

Sausage Stuffers or Fillers—

See Stuffers or Fillers, Sausage.

Saw Frames—

See Frames, Saw.

Saw Sets—See Sets, Saw.**Saw Tools—See Tools, Saw.****Saws—**

Note.—Extra 5¢@10% often given on Circulars, Cross Cuts, &c. and extra 5¢@7% on Hand, Butcher, &c.	
Atkins' Circular	50%
Atkins' Band	50%
Atkins' Cross Cuts	40%
Atkins' Mulay, Mill and Drag	50%
Atkins' One-Man Saw	40&10%
Atkins' Wood Saws	40&10%
Atkins' Hand, Compass, &c.	40%
Daston Circular Saws and Hinges	50%
Tooth	50%
Daston Band 2 to 14 in. wide	60%
Daston Band 1/4 to 1 1/2	70%
Daston Crosscuts	50%
Daston Narrow Crosscuts	55%
Daston Mulay, Mill and Drag	50%
Daston Framed Wood Saws	55%
Daston Wood Saws	40%
Daston Wood Saws	25%
Daston Hand Saws, Nos. 12, 99, 9, 16, d100, D4, 120, 79, 77, 8	25%
Daston Hand Saws, Nos. 7, 107, 10 1/2, 3, 1, 0, 00, Combination	30%
Daston Compasses, K. Y. Co., &c.	25%
Daston Hangers Saws and Hinges	35%
C. E. Jennings & Co.'s	25&5%
Peace Circular and Mill	45&10%
Peace Cross Cuts, list Jan. 1, '99, 45&10&5%	
Peace Hand, Panel and Rip	45&10%
Richardson's Circular and Mill	45&10%
Richardson's X Cuts, list Jan. 1, '99	
Richardson's Hand, &c.	25&10&5%
Simonds' Circular Saws	50%
Simonds' Crescent Ground Cross Cut Saws	35%
Simonds' One-Man Cross Cuts	40&10%
Simonds' Gang Mill, Mulay and Drag Saws	45&10%

Hack Saws—

Diston Concave Blades	25%
Diston Key Stone	30%
Diston Hack Saw Frames	30%
Griffin's complete	60&50&10%
Griffin's Hack Saw Blades	60&50&10%
Star Hack Saws and Blades	15&10%

Scroll—

Barnes' No. 7, \$15	25%
Barnes' Scroll Saw Blades	40%
Barnes' Velocipede Power Scroll Saw, w/ front border, \$18; with border, \$20	
Lester, complete, \$10.00	15&10%
Rogers, complete \$4.00	15&10%

Scale Beams—

See Beams, Scale.

Scales—

Family, Turnbull's	30@50&10%
Hatch, Counter, No. 171, good quality	doz. \$17.00@18.00
Hatch, Tea, No. 161	doz. \$5.75@6.00
Union Platform, Plain	\$2.00@2.10
Union Platform, Striped	\$2.15@2.25
Chatillon's Eureka	25%
Chatillon's Favorite	40%
Chatillon's Grocers' Trip Scales	50%
Pelouze Scales—Family, Candy, Grocers' and Postal	39 1/4¢
"The Standard" Portables	45@50%
"The Standard" R. R. and Wagon	60%

Scrapers—

Box, 1 Handle	doz. \$2.00
Box, 2 Handle	doz. \$5.00@4.00
Ship, No. 1, doz. \$5.50; No. 2	\$2.25@2.40
Adjustable Box Scraper (S. R. & L. Co.)	\$8.00
Foot, W. E. Pratt Mfg. Co.	40&10%
	doz. \$1.15@1.25

Screen Window and Door Frames—See Frames.**Screw Drivers—**

See Drivers, Screws.

Screws—**Bench and Hand—**

Bench, Iron	doz. 1 in., \$2.30; 1 1/4, \$2.65; 1 1/2, \$3.00
Bench, Wood, Beech	doz. \$2.00@2.20
Hand, Wood	30¢10¢40¢10%
Hand, Grand Rapids	35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 50, '95	70¢@70&5%
Coach and Lag, Gimlet Point, list Jan. 50, '95	70¢70¢
Hand Rail, list Jan. 1, '81	82 1/2¢

Jack Screws—

Millers Falls	50&10&10%
Millers Falls, Roller	50&10%
P. S. & W.	40&40&10%
Sargent	70&10&10%

Machine—

List Jan. 1, '98	
Flat or Round Head, Iron	60%
Flat or Round Head, Brass	50%

Set and Cap—

Set (Iron or Steel)	75¢75¢5%
Sq. Hd. Cap	70¢70¢5%
Hex. Hd. Cap	70¢70¢5%

Wood—

List Nov. 10, 1898. Discounts adopted June 23, '99.	
Flat Head, Iron	92 1/2%
Round Head, Iron	80%
Flat Head, Brass	77 1/2¢10%
Round Head, Brass	72 1/2¢10%
Flat Head, Bronze	72 1/2¢
Round Head, Bronze	70%
Drive Screws	85%
Note.—An extra 5 or 10% is often given.	

Scroll Saws—See Saws, Scroll.**Scythes—**

Grass and Grain	50¢10%
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Scythe Snaths—

See Snaths, Scythe.

Seeders—

Enterprise	25@30%
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Sets—**Awl and Tool—**

Brad Awl and Tool Sets:	
Wood Hdl., 10 Acls.	doz. \$2.00
Wood Hdl., 15 Acls, 6 Tools	doz. \$2.25@2.40

Alken's Sets, Acls and Tools:

No. 20, # doz. \$10.00, 60&10&5%	
Fray's Adj. Tool Hdl's, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$8; 5, \$7	50%
Millers Falls Adj. Tool Hdl's, No. 1, \$12; No. 4, \$12; No. 5, \$18	15&10%
Stanley's Excelsior:	
No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50	40&10&40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe	doz. \$9.00
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Nail—

Round, assorted	gro. \$3.25@3.75
Octagon	gro. \$4.25@4.75
Knurled, Good	gro. \$6.00
Buck Brothers	27 1/2%
Cannon's Diamond Point, # gr. \$12.25	
Snell's Corrugated, Cup Pt.	50%
Snell's Knurled, Cup Pt.	60&5%

Rivet—

Regular list	70¢@75%
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Saw—

Alken's Genuine	doz. \$4.50@5.00
Alken's Imitation	doz. \$3.00@3.10
Alken's Criterion	doz. \$6.00
Alken's Adjustable	doz. \$8.00
Bemis & Call Co.'s Cross Cut	30&5%
Bemis & Call Co.'s Plate	20%
Bemis & Call Spring Hammer	30&5%
Diston's Star and Mona ch.	35%
Hammer, Bemis & Call Co.'s new Pat. 4x4	

Morrill's No. 1, \$15.00	40&20%
Nos. 3 and 4, Cross Cut, \$5.00	40&20%
No. 5, Mill, \$31.00	40&20%
No. 10, \$15.50	40&20%
No. 11, \$16.00	40&20%
Taintor Positive, # doz. \$18	60%

Sharpeners, Knife—

Tanite Mills # gross, \$14.40	25@33 1/4%
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Shaves, Spoke—

Iron	doz. \$1.00@1.15
Wood	doz. \$1.75@2.00
Bailey's (Stanley R. & L. Co.)	50&10%
Goodell's, # doz. \$9.00	15&10%
Stearns', Nos. 3 to 10	40&10%

Shears—

Cast Iron	7 8 9 in.
Best	\$16.00 18.00 20.00 gro.
Good	\$13.00 15.00 17.00 gro.
Cheap	\$9.00 10.00 11.00 gro.

Straight Trimmers, &c.—

Fair qual. Jap...	80¢@10@80¢10¢10¢
" Nickel.....	75¢5@75¢10¢
Tailors' Shears.....	10@10¢10¢

Shovels and Tongs—

Brass Head.....60¢10@60¢10¢10¢
Iron Head.....60¢10@60¢10¢10¢

Sieves and Sifters—

Hunter's Imitation, gro. \$10.00@10.50
Buffalo Metallic, S. S. & Co., gr.:
14&18 10&18 18&20
\$10.00 \$12.00 \$13.20
Roller.....gr. \$9.00@9.50
Hunter's Genuine.....gr. \$10.50@11.00
Shaker (Barber's Pat.) Flour Sifters.....
doz., \$2.00.....93¢

Sieves, Wooden Rim—

Mesh 18, Nested, doz.....\$0.75@0.80
Mesh 20, Nested, doz......85@.90
Mesh 24, Nested, doz..... 1.00@1.05

Sinks—**Cast Iron—**

Low list.....65¢@65¢5¢

NOTE.—The low list is now generally used, but some jobbers use high list.

Wrought Steel—

Columbus Galv'd and Rameled, 60&5¢
Columbus, Painted.....45¢
L. & G.....50¢

Skeins, Wagon—

Malleable Iron.....70¢10@75¢10¢
Steel.....45¢10@45¢10¢
I. L. & Co. Steel.....45¢

Slates—

"D" Slates.....50¢10@50¢10¢10¢
Unexcelled Noiseless Slates.....
60¢6 tens@60¢6 tens@5¢
Wire Bound.....40¢10@50¢10¢
Double Slates, add \$1 case, net.

Slaw Cutters—See Cutters.**Snaps, Harness—**

German.....50¢@50¢5¢
Covert Mfg. Co.:
Deroy.....45¢10¢
High Grade.....45¢2¢
Jockey.....45¢10¢2¢
Trojan.....45¢10¢2¢

Covert's Saddlery Works:
Banner.....75¢
Crown.....70¢
Triumph.....70¢

W. & E. T. Fitch Co.:
Bristol.....40¢10¢
Empire.....50¢5¢
National.....50¢5¢
Clipper.....50¢10¢5¢
Champion.....40¢10¢
Victor.....00¢5¢

One da' Commun ty:
Solid Steel.....65¢@65¢10¢
Solid Swivel.....5¢10¢@5¢10¢
Sargent's Patent Guarded.....
70¢10@70¢10¢10¢

Snaths—

Scythe.....55¢

Snips, Tinnners'—See Shears.**Soldering Irons—**

See Irons, Soldering.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—

Silver Plated—

Flat Ware.....50¢10@60¢10¢
Wm. Rogers Mfg. Co.....50¢10¢

Miscellaneous—

German Silver.....60¢10¢
Wm. Rogers Mfg. Co.:
18¢ German Silver.....80¢
Rogers' Silver Metal.....50¢10¢

Springs—**Door—**

Gem (Coll).....20¢
Star (Coll).....30¢
Torrey's Rod, 39 in., # doz. \$1.10@1.25
Warner's No. 1, # doz. \$1.50; No. 2,
\$3.40.....55¢5¢10¢
Victor (Coll).....60¢10@60¢10¢5¢

Carriage, Wagon, &c.

1½ in. and wider...Blk. Hf Brt. Brt.
Tested and Temp 5 5½ 5½c lb
Oil Tested and
Tempered.....6 6¼ 6½c lb
Cliff's Bolster Springs.....40¢2¢
Cliff's Seat Springs.....# pair 45¢

Sprinklers, Lawn—

Enterprise.....25¢30¢
Philadelphia No. 1, # doz. \$12; No. 2,
\$15; No. 3, \$24.....35¢

Squares—

Nickel plated....{ List May 1, '95.
Steel and Iron.....70¢10@75¢10¢
Rosewood Hdl. Try Square and T-
Bevels.....80¢10@10¢10¢
Iron Hdl. Try Square and T-Bevels.....
40¢10@40¢10¢10¢

Diston's Try Sq. and T-Bevels.....80¢10¢
Winterbottom's Try and Miter.....50¢10¢

Squeezers—**Lemon—**

Wood, Common, gro. No. 0. \$5.00;
No. 1, \$6.50; No. 2, \$10.00.
Wood, Porcelain lined:
Cheap.....doz. \$2.00@2.75
Good Grade.....doz. \$3.00@3.50

Tinned Iron.....doz. \$0.80@1.85
Iron, Porcelain Lined doz. \$3.25@3.50
Jennings' Star.....# doz. \$1.85@1.90
King.....# doz. \$2.00

Staples—

Barbed Blind.....lb. 9@9½¢
Electricians', Association list.....80¢
Fence Staples, same price as Barbed
Wire. See Trade Report.
Poultry Netting.....lb. 5½¢@6¢
Grand Crossing Tack Co.'s list.....75¢10¢

Steels, Butchers'—

Dick's.....40¢
Foster Bros'.....30¢
C. & A. Hoffmann's.....40¢
Nichols Bros.....50¢
John Wilson's, list Sept. 1, '94.....25¢

Steelyards.....40¢10¢10¢**Stocks and Dies—**

Blacksmiths'.....35¢@40¢
Gardner.....50¢
Green River.....25¢
Lightning Screw Plate.....25¢
Little Giant.....25¢
Rece's New Screw Plates.....25¢30¢
Curtis Reversible Ratchet Die Stock.....25¢

Stone—**Scythe Stones—**

Pike Mfg. Co., list '95-'96.....33¢4¢
Cleveland Stone Co., list Nov., '92.....33¢4¢

Oil Stones, &c.

Pike Mfg. Co.:
Hindustan No. 1, # doz. 8¢
Sand Stone.....5¢ 33¢4¢
Turkey Oil Stone, Extra.....80¢ 33¢4¢
5 to 8 in.....80¢
Lily White Washita.....60¢
Rosy Red Washita.....80¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5 in. \$2.50
Arkansas Stone, No. 1, 5 to 8 in. \$3.50

Tanite Mills:
Emery Oil, # doz. \$5.00.....50¢@60¢

Stoners—**Cherry—**

Enterprise.....25¢30¢

Stops, Bench—

Millers Falls.....15¢10¢
Morrill's...# doz. No. 1, \$10.00; No. 2,
\$11.00, 40¢20¢
Stearns'.....40¢

Stops, Window—

Ives' Patent.....25¢5¢
Taplin's.....45¢

Stove Boards—

See Boards, Stove.

Stove Polish—See Polish, Stove.**Straps, Box—**

Cary's Universal.....20¢10¢

Stretchers, Carpet—

Cast Iron, Steel Points...doz. 70¢75¢
Cast Steel, Polished.....doz. \$2.25
Socket.....doz. \$1.75

Stuffers, Sausage—

Miles' Challenge, # doz. \$20.....50¢50¢25¢
Enterprise Mfg. Co., list Jan. 17, '93.....
25¢25¢75¢
National Specialty Mfg. Co., list Jan.
1, '97.....30¢

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks:
American Blued.....80¢10¢
American Tinned.....90¢10¢
American Cut Tacks.....90¢
Swedes Iron Tacks.....90¢10¢
Upholsterers' Tacks.....90¢25¢
Gimp Tacks.....90¢25¢
Lace Tacks.....90¢25¢
Trimmers' Tacks.....90¢10¢
Looking Glass Tacks.....70¢
Bill Posters' and Railroad Tack.....
90¢10¢
Hungarian Nails.....80¢15¢
Common and Patent Brads.....70¢5¢
Trunk and Clout Nails:
Blued.....75¢5¢
Tinned.....75¢5¢

Miscellaneous—

Double Point Tacks.....90¢5¢@
Steel Wire Brads, R. & E. Mfg.
Co.'s list.....50¢10¢60¢
See also Nails, Wire.

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. \$3.50
Emerald, S. S. & Co.....60-gal. \$4.40
Queen City S. S. & Co., 10-gal.....\$3.50
Queen City S. S. & Co., 60-gal.....\$4.50

Tapes, Measuring—

American Asses' Skin.....40¢10@50¢5¢
Patent Leather.....25¢@25¢10¢
Steel.....33¢@40¢
Chesterman's.....25¢@25¢5¢
Kouffel & Easer Co., Steel and Metallic,
Lower list, 1899.....35¢
Lufkin's Steel.....33¢@35¢
Lufkin's Metallic.....30¢5¢

Thermometers—

Tin Case.....80¢10@80¢10¢10¢

Ties, Bale—Steel.

Standard Wire.....60¢10¢5¢

Ties, Wall—

Cleveland, Steel.....# 1000, \$10.00

Tinners' Shears, &c.—

See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pleased, sold
very generally at net prices.

Tire Benders, Upsetters,

&c.—See Benders and Upset-

ters, Tire.

Tobacco Cutters—

See Cutters, Tobacco.

Tools—**Coopers'—**

L. & I. J. White.....20¢20¢5¢

Saw—

Atkins' new list.....40¢
Simonds'.....33¢4¢

Transom Lifters—

See Lifters, Transom.

Traps— Game—

Newhouse.....50¢5¢@50¢10¢
Oneida Pattern.....80¢@80¢5¢
genuine Blase, Lamb & Co.
60¢10@60¢10¢5¢

Mouse and Rat—

Mouse, Wood, Choker, doz. holes. 8@9¢
Mouse, Round or Square Wire.....
doz. \$0.85@1.00
Marty French Rat and Mouse Traps
(Genuine):

No. 1, Rat.....# doz. \$15.00
No. 2, Rat.....# doz. \$5.85
No. 3, Rat.....# doz. \$4.50
No. 4, Mouse.....# doz. \$4.30
No. 5, Mouse.....# doz. \$3.00
Schuyler's Rat Killer, No. 1, # gr. \$13.50;
No. 2, # gr. \$15.00
Out o' Sight, Mouse, No. 1, # doz. 60¢;
No. 2, # doz. 1.25; No. 6, \$6.00;
Gopher, \$1.50; Stop Thief, No. 1,
\$1.25; No. 2, \$1.50.

Fly—

Balloon, Globe or Acme.....
doz. \$1.25; gro. \$14.50@15.00
Harper, Champion or Paragon
doz. \$1.50; gro. \$17.00

Trimmers, Spoke—

Bonney's No. 1, # doz. \$3.00; No. 2,
\$4.00
Douglas, # doz. \$9.00.....20¢
Stearns'.....20¢10¢

Trowels—

Diston Brick and Pointing.....30¢
Diston Plastering.....25¢
Diston "Standard Brand" and Ga-
den Trowels.....40¢
Peace's Plastering.....25¢25¢5¢
Rose Brick and Plastering.....3¢@30¢10¢
Woodrough & McParlin, Plastering.....25¢10¢

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40¢
Daisy Stove Trucks, improved pattern
doz. \$18.00

Tubs, Wash—

No. 1 2 3
Galvanized, per doz. \$5.00 5 50 6 00
Galv. nized S. S. & Co., with Wringer
Attachment, # doz. No. 10, \$6.25;
No. 20, \$6.75; No. 30.....\$7.50

Twine—**Miscellaneous—**

Flax Twine - BC B.
No. 3, ¼ and ½-lb. Balls.....20¢ 24¢
No. 12, ¼ and ½-lb. Balls.....17¢ 20¢
No. 18, ¼ and ½-lb. Balls.....14¢ 17¢
No. 24, ¼ and ½-lb. Balls.....14¢ 17¢
No. 36, ¼ and ½-lb. Balls.....13¢ 16¢
Chalk Line, Cotton, ½-lb. Balls.....
18¢@20¢

Cotton Mops, 6, 9, 12 and 15 lb. to
doz.....7¢@8¢
Cotton Wrapping, 5 Balls to lb.....
9¢@16¢

American 2-Ply Hemp, ¼ and ½-lb.
Balls.....10¢@12¢
American 3-Ply Hemp, 1-lb. Balls.....
10¢@12¢

India 2-Ply Hemp, ¼ and ½-lb.

Balls (Spring Twine).....8¢
India 3-Ply Hemp, 1-lb. Balls.....3¢
India 3-Ply Hemp, ¼-lb. Balls.....
7¢@7½¢
2, 3, 4 and 5-Ply Jute, ¼-lb. Balls.....6½¢
Mason Line, Linen, ¼-lb. Balls.....45¢
No. 26 Mattress, ¼ and ½-lb. Balls.....3¢
Wool.....5¢@5½¢

Vises—

Solid Box.....60¢@60¢5¢

Bonney's Saw Vises.....40¢10¢

Parallel—

Bonney's.....40¢10¢
Fisher & Norris Double Screw.....15¢10¢
Hollands.....40¢@40¢10¢
Massey's Perfect.....20¢@25¢
Massey's Clincher.....40¢@40¢10¢
Merrill's.....20¢
Miller's Falls.....45¢10¢
Parker's.....20¢25¢
Parker's Oval Slide.....50¢10¢
Parker's Victor.....30¢
Prentiss.....20¢25¢
Sargent's.....70¢10@70¢10¢10¢
Simpson's Adjustable.....40¢
Stephens'.....25¢30¢
Toles' Woodworking.....25¢
Trenton.....40¢5¢@40¢10¢

Saw Filers—

Bonney's Nos. 2 & 3, \$15.00.....40¢10¢
Disston's D 3 Clamp and guide, # d. 2
\$30.....25¢
Reading.....40¢10¢
Stearns' Common, Nos. 1 & 2.....40¢
Stearns' Rubber Jaw, No. 33.....30¢7½¢
Wentworth's Rubber Jaw, Nos. 1, 2
and 3.....30¢7½¢

Miscellaneous—

Signal & Keeler Combination Pipe
Vise.....60¢25¢

Parker's Combination Pipe:
87 Series.....80¢
187 Series.....80¢5¢
No. 870.....40¢

Wads—Price Per M.

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....\$1.00
P. E., 9 and 10.....1.25
P. E., 8.....1.50
P. E., 7.....1.50
Ely's B. E., 11 and larger.....\$1.70@1.75
Ely's P. E., 12 to 20.....\$3.00@3.25

Wagon Jacks—

See Jacks, Wagon.

Ware, Hollow—

Aluminum—

S. S. & Co. Reduced List.....40¢

Cast Iron, Hollow—

Stove Hollow Ware:

Ground.....60¢10@65¢
Unground.....60¢10¢10¢70¢

White Enameled Ware:

Moslin Kettles.....75¢10@75¢10¢5¢
Boilers and Saucepans.....60¢@60¢5¢
Tinned Boilers and Saucepans.....60¢5¢
See also Pots, Glue.

Note.—See Trade Report.

Enameled—

Agate Nickel 1 Steel Ware, list July '99, 40¢
Granite Ware, list Jan. 1, '94, revised
Jan. 2, '95.....40¢10¢
Second Quality, Agate Nickel Steel.....65¢
Second Quality, Granite.....70¢10¢70¢10¢10¢

Iron Clad:

Peppered Ware, high list.....70¢
Pineas Ware, special list.....33¢
Mottled Ware, high list.....75¢15¢
Never Break Enameled.....50¢10¢

Tea Kettles—

Galvanized Tea Kettles:

Inch.....6 7 8 9
Each.....40¢ 45¢ 50¢ 60¢

Steel Hollow Ware.

Avery Spiders & Griddles.....70¢70¢5¢
Avery Kettles.....60¢@60¢10¢
Lava.....50¢5¢
Never Break Spiders and Griddles.....
70¢70¢5¢

Never Break Kettles.....60¢@60¢10¢
Solid Steel Spiders & Griddles.....70¢70¢5¢
Solid Steel Kettles.....60¢@60¢10¢
Solid Steel Ware, Enameled.....50¢5¢

Silver Plated Hollow—

William Rogers Mfg. Co.....40¢10¢5¢

Washboards—

Solid Zinc.....# doz

Crescent, family size, bent frame, \$3.00
Red Star, laundry size, stationary
protector.....\$4.25

Double Zinc Surface:

Saginaw Globe, family size, station-
ary protector.....\$3.50
Wilson, family size, bent frame.....\$2.50

Single Zinc Surface:

Nalad, protector, family size, open
back perforated.....\$2.25
Saginaw Globe, protector, family
size, ventilated back.....\$2.10
Wilson, bent frame, family size,
ventilated back.....\$2.10

Washers—	
Leather, Axle—	
Solid.....	80¢10¢10¢85¢
Patent.....	85¢85¢85¢
Coil: 1/4 1 1 1/4 1 1/2 1 3/4	Inch.
13c 11c 15c 17c per 100	
Iron or Steel—	
Size bolt....	5-16 3/4 1/2 3/4 1
Washers.....	\$5.30 4.90 5.80 5.30 5.10
In lots less than one keg add 1/4c per lb., 5-lb. boxes add 1/2c to list.	
Note—Jobbers' prices generally lower than manufacturers'.	
Washer Cutters—	
See Cutters, Washer.	
Washing Machines—	
See Machines, Washing.	
Water Coolers—	
See Coolers, Water.	
Weaners—	
Tyler's New Water—No. 1 1/2 doz. \$3.45; No. 2 \$3.70; No. 3 \$4.00; No. 4 \$4.30	
Tyler's S. & W.—Nos. 1 and 2, 1/2 doz. \$1.70; No. 3, \$2.00; No. 4, \$2.30.	
Wedges—	
Oil Finish.....lb. \$1.70@2.85c	

Aze Finish.....lb. 3.00@3.10c	
Weights, Sash—	
Carloads at factory.....	\$16.50@18.50
Less than carloads at factory.....	\$17.50@19.50
Note—Some Foundries are naming higher prices.	
Well Buckets, Galvanized	
See Pails, Galvanized.	
Wheels Well—	
8-in., \$2 15; 10-in., \$2.50; 12-in., \$3.00; 14-in., \$3.50.	
Wire and Wire Goods—	
Market: Nos. 6 to 16:	
Br. & Ann.....	70¢5@72 1/2¢
Cop'd.....	65¢5@67 1/2¢
Galv.....	65¢5@67 1/2¢
Tin'd, Tin'd list.....	72 1/2¢5@75¢
Stone, Br. and Ann'd:	
Nos. 19 to 26.....	77 1/2¢@77 3/4¢
Nos. 27 to 36.....	77 1/2¢@77 3/4¢
Annealed Wire on Spools.....	
60¢10¢60¢10¢5¢	
Brass, list Feb. 26, '96.....	15¢

Copper, list Feb. 26, '96.....	20¢
Cast Steel Wire.....	50¢
Stubs' Steel Wire.....	\$6.00 to \$1.40¢
Wire Clothes Line, see Lines.	
Wire Picture Cord, see Cord.	
Bright Wire Goods—	
Iron and Brass, list July 1, 1899.....	80¢10¢80¢10¢10¢
Wire Cloth and Netting—	
Galvanized Wire Netting.....	80¢80¢15¢
Painted Screen Cloth per 100 ft.....	\$1 25¢
Wire Barb—See Trade Report.	
Wire, Rope—See Rope, Wire.	
Wrenches—	
Agricultural.....	75¢10¢80¢
Baxter's S.....	70¢
Cox's Genuine.....	83 1/2¢10¢5¢5¢3¢
Cox's "Mechanics".....	33 1/2¢10¢10¢5¢5¢3¢
Allen's.....	60¢60¢5¢
Allen's Pocket (Bright).....	\$2.00@3.30¢
Alligator.....	75¢

Bemis & Call's:	
Adjustable S.....	35¢5¢
Adjustable Pipe.....	40¢
Brigg's Pattern.....	30¢10¢
Combination Black.....	40¢10¢
Combination Bright.....	40¢5¢
Cylinder or Gas Pipe.....	55¢
Extra Heavy.....	45¢
Merrick's Pattern.....	50¢
No. 3 Pipe, Bright.....	50¢
Boardman's.....	33 1/2¢
Bull Dog, W. & B.....	70¢70¢10¢
Donohue's Engineer.....	40¢10¢
Eagle.....	50¢10¢
Hercules.....	70¢10¢75¢
Stevenson.....	60¢10¢10¢
Stillson's.....	55¢
Wrought Goods—	
Staples, Hooks, &c., list March 17, '99.....	85¢35¢10¢
Yokes, Neck—	
Covert Saddlery Works, Trimmer.....	70¢
Covert Saddlery Works, Neck Yoke Centers.....	70¢
Yokes, Ox, and Ox Bows—	
Fort Madison's Farmers & Freighters.....	20¢
Zinc—	
Sheet.....lb. 7 1/4¢@8¢	

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.	
Lead, Foreign white, in Oil.....	7 1/2¢8 1/4¢
Lead, American White, in Oil:	
Lots of 500 lb. or over.....	6¢
Lots less than 500 lb.....	6 1/2¢
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	1/4¢
Lead, White, in oil, 12 1/2 lb tin	
pails, add to keg price.....	1¢
Lead, White, in oil, 1 to 5 lb as-	
sorted tins, add to keg price.....	1 1/4¢
Lead White, Dry in bbls.....	5 1/2¢
Lead, American, Terms: On lots of 500	
lbs. and over, 60 days, or 2% for cash if	
paid in 15 days from date of invoice.	
Zinc, American, dry.....	4 1/2¢@5¢
Zinc, Paris, Red Seal.....	8 1/2¢
Zinc, Paris, Green Seal.....	9 1/2¢
Zinc, Antwerp, Red Seal.....	7 1/2¢
Zinc, Antwerp, Green Seal.....	8 1/2¢
Zinc, V. M. in Poppy Oil, G. Seal	
lots of 1 ton and over.....	11 1/4¢
lots less than 1 ton.....	12 1/4¢
Zinc, V. M. in Poppy Oil, Red Seal,	
lots of 1 ton and over.....	10 1/4¢
lots less than 1 ton.....	11 1/4¢
Discounts.—V. M. French Zinc.—Dis-	
counts to buyers of 10 bbl. lots of one or	
assorted grades, 1% 25 bbls., 2% 50 bbls.,	
4% No discount allowed on less than 10	
bbl. lots.	
Dry Colors.	
Black, Carbon.....	6¢@10¢
Black, Drop, Amer.....	2 1/4¢@4¢
Black, Drop, Eng.....	5¢@10¢
Black, Ivory.....	9¢@20¢
Blue, Celestial.....	5¢@8¢
Blue, Chinese.....	33¢@38¢
Blue, Ultramarine.....	25¢@30¢
Blue, Prussian.....	7¢@35¢
Brown, Spanish.....	24¢@54¢
Brown, Vandyke, Amer.....	24¢@54¢
Brown, Vandyke, Foreign.....	24¢@54¢
Carmine, No. 40, in bulk.....	\$2.20@2.25¢
Carmine, No. 40, in 1/2 bottles.....	2.35¢

Carmine, No. 40, in ounce bot.....	2.40@3.50¢
Green, Chrome, ordinary.....	5¢@9¢
Green, Chrome, pure.....	19¢@25¢
Lead, Red, bbls. and 1/2 bbls.....	6¢@8¢
Lead, Red, kegs.....	6¢@8¢
Litharge, bbls. and 1/2 bbls.....	6¢@8¢
Litharge, kegs.....	6¢@8¢
Ocher, French Washed.....	14¢@24¢
Ocher, German Washed.....	4 1/2¢@5¢
Ocher, American.....	\$10.00@13.00¢
Orange Mineral, English.....	9¢@9 1/2¢
Orange Mineral, French.....	10 1/2¢@10 3/4¢
Orange Mineral, German.....	9¢@9 1/2¢
Red, Indian, English.....	4 1/2¢@8 1/2¢
Red, Indian, American.....	3¢@3 1/2¢
Red, Turkey, En H.....	7¢@10¢
Red, Tuscan, English.....	7¢@10¢
Red, Venetian, Amer.....	\$100.50@1.10¢
Red, Venetian, English.....	14¢@15¢
Sienna, Italian, Burnt and	
Powdered.....	2 1/2¢@5¢
Sienna, Ital., Raw, Powd.....	2 1/2¢@5¢
Sienna, American, Raw.....	14¢@15¢
Sienna, American, Burnt and	
Powdered.....	14¢@15¢
Talc, French.....	\$100.50@1.25¢
Talc, American.....	50¢@85¢
Terra Alba, French.....	80¢@1.00¢
Terra Alba, English.....	85¢@1.00¢
Terra Alba, American No. 1.....	85¢@1.00¢
Terra Alba, American No. 2.....	45¢@50¢
Umber, Turkey, Bnt. & Powd.....	24¢@34¢
Umber, Turkey, Raw & Powd.....	24¢@34¢
Umber, Bnt. Amer.....	14¢@15¢
Umber, Raw, Amer.....	14¢@15¢
Yellow, Chrome.....	10¢@25¢
Vermilion, American Lead.....	10¢@20¢
Vermilion, Quicksilver, bbls	
or kegs.....	64¢
Vermilion, Quicksilver, bags.....	65¢
Vermilion, Quicksilver, sm'r pkgs.....	60¢
Vermilion, English, Import.....	65¢
Vermilion, Artificial.....	5¢@20¢
Vermilion Chinese.....	80¢
Colors in Oil.	
Black, Lampblack, Best.....	13¢@14¢

Black, Lampblack, Common.....	10¢@11¢
Blue, Chinese.....	35¢@40¢
Blue, Prussian.....	30¢@35¢
Blue, Ultramarine.....	12¢@16¢
Brown, Vandyke.....	8¢@13¢
Green, Chrome.....	8¢@14¢
Green, Paris.....	20¢@24¢
Sienna, Raw.....	8¢@13¢
Sienna, Burnt.....	8¢@13¢
Umber, Raw.....	8¢@12¢
Umber, Burnt.....	8¢@12¢
Miscellaneous.	
Barytes, Foreign, 1/2 ton.....	\$18.00@20.00¢
Barytes, Amer. floated.....	10.00@20.00¢
Barytes, Crude.....	8.00@10.00¢
Chalk, in bulk.....	2.15¢@2.25¢
Chalk, in bbls.....	35¢@
China Clay, English.....	11.00@17.00¢
Cobalt, Oxide.....	\$100.50@1.76¢
Whiting, Common.....	42 1/2¢@50¢
Whiting, Gliders.....	47¢@56¢
Whiting, extra Gliders.....	57¢@64¢
Putty.	
In barrels and 1/2 bbls.....	1.4-10¢1 1/2¢
In tubs.....	1.1¢@1.6-10¢
In tin cans.....	1 1/2¢@2¢
In bladders.....	1 1/2¢@2¢
Spirits Turpentine.	
In Southern bbls.....	47 1/2¢@
In machine bbls.....	49¢@
Glue.	
Low Grade.....	13¢@15¢
Cabinet.....	13¢@16¢
Medium White.....	14¢@16¢
Extra White.....	16¢@25¢
French.....	12¢@25¢
Irish.....	13¢@15¢
Animal, Fish and Vege-	
table Oils.	
Linseed, City, raw.....	43¢@43¢
Linseed, City, boiled.....	44¢@45¢
Linseed, S. & E. and West'n, raw.....	41¢@

Linseed, raw Calcutta seed.....	200¢
Lard, Prime City, present make.....	43¢
Lard, Extra No. 1.....	35¢
Lard, No. 1.....	31¢
Cotton-seed, Crude.....	21¢
Cotton-seed, Summer Yellow,	
prime.....	20¢@26 1/4¢
Cotton-seed Summer Yellow,	
off grades.....	25¢@25 1/2¢
Sperm, Crude.....	50¢@52¢
Sperm, Natural Spring.....	50¢
Sperm, Bleached Spring.....	50¢
Sperm, Natural Winter.....	55¢
Sperm, Bleached Winter.....	50¢
Whale, Crude.....	43¢
Whale, Natural Winter.....	43¢
Whale, Bleached Winter.....	43¢
Whale, Extra Bleached Win.....	48¢
Menhaden, Crude, Sound.....	28¢@29¢
Menhaden, Light Pressed.....	28¢@29¢
Menhaden, Bleached Winter.....	41¢
Menhaden, Extra Bleached.....	34¢@35¢
Tallow, Western, prime.....	44¢@45¢
Cocconut, Ceylon.....	54¢@55¢
Cocconut, Coch.....	6¢@6 1/2¢
Cod, Domestic.....	33¢@35¢
Cod, Newfoundland.....	34¢@40¢
Red Elaine.....	28¢@30¢
Red Saponified.....	34¢@44¢
Strait.....	37¢
Oliva, Italian, bbls.....	52¢
Neatsfoot, prime.....	45¢@50¢
Palm, prime, Lagos.....	54¢@54 1/2¢
Mineral Oils.	
Black, 29 gravity, 25@30 cold	
test.....	7 1/2¢@8 1/4¢
Black, 29 gravity, 15 cold test.....	8 1/4¢@9 1/4¢
Black, summer.....	7 1/2¢@7 3/4¢
Cylinder, light filtered.....	13 1/2¢@14 1/2¢
Cylinder, dark filtered.....	11 1/2¢@12 1/2¢
Paraffine, 23 1/2@24 gravity.....	9 1/2¢@9 5/8¢
Paraffine, 25 gravity.....	8 1/2¢@8 3/4¢
Paraffine, 28 gravity.....	7 1/2¢@7 3/4¢
Paraffine, red, No. 1.....	9¢@9 1/2¢
In small lots 1/4¢ advance.	

THE IRON AGE.

The oldest paper in the world devoted to the interests of the Hardware, Iron and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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